KENWOOD

SERVICE MANUAL

6m ALL MODE TRANSCEIVER

Model TS-600

CONTENTS

TS-600 SPECIFICATIONS

SPECIFICATIONS

TRANSMIT/RECEIVE FREQUENCY RANGE	50 ~ 54 MHz
MODE	SSB, FM, CW, AM
RF OUTPUT	10 watts for SSB, CW and FM 5 watts for AM
ANTENNA IMPEDANCE	50Ω (unbalanced)
CARRIER SUPPRESSION	Better than 40 dB
SIDE-BAND SUPPRESSION	Better than 40 dB
SPURIOUS RADIATION	Less than − 60 dB
MAX. FREQUENCY DEVIATION (FM)	± 5 kHz
MODULATION	Balanced modulation for SSB Variable reactance frequency shift for FM Low power modulation for AM
MICROPHONE	Dynamic microphone, 500Ω
AUDIO FREQUENCY RESPONSE	400 ~ 2600 Hz, within −9 dB
POWER CONSUMPTION	Transmit mode: 95W (AC 120/220), 4A (DC 13.8V), max. Receive mode (no signal): 45W (AC 120/220V), 0.8A (DC 13.8V)
POWER REQUIREMENTS	AC 120/220V, 50/60 Hz DC 12V ~ 16V (13.8V as reference)
DIMENSIONS	278(W) x 124(H) x 325(D) mm
WEIGHT	11 kg
RECEIVING SYSTEM	SSB, CW: Single-superheterodyne AM, FM: Double-superheterodyne
INTERMEDIATE FREQUENCY	SSB, CW, . . . 10.7 MHz FM, AM: 1st IF . . . 10.7 MHz 2nd IF: . . . 455 kHz
RECEIVING SENSITIVITY	SSB, CW: S/N = 10 dB or better at 0.25μV FM: S/N = 30 dB or better at 1μV 20 dB noise quieting = Less than 0.4μV AM: S/N = 10 dB or better at 0.5μV
IMAGE RATIO	Better than 70 dB
IF REJECTION	Better than 70 dB
PASS-BAND WIDTH	SSB, CW: More than 2.4 kHz at −6 dB AM: More than 4 kHz at −6dB FM: More than 12 kHz at −6 dB
RECEIVER SELECTIVITY	SSB, CW: Less than 4.8 kHz at −60 dB AM: Less than 12 kHz at −40 dB FM: Less than 32 kHz at −60 dB
SQUELCH SENSITIVITY	0.25μV
AUDIO OUTPUT	More than 2.5W at 4Ω load (10% distortion)
RECEIVER LOAD IMPEDANCE	8Ω
FREQUENCY STABILITY	Within ± 2 kHz during one hour after one minute of warm-up, and within 150 Hz during any 30 minute period thereafter.

The above specifications are subject to change without notice for improvement.

SECTION 1. TS-600 FEATURES

1. The Model TS-600 is a fully solid-state, all-mode amateur band transceiver designed to provide high quality communications on SSB, FM, AM and CW bands.

2. Bascially engineered for fixed station operation but is also used for mobile station operation because of the employment of AC/DC two-way power system.

3. The single and doubleconversion type transceiver incorporates its own built-in VFO that continuously covers the frequency range of 50.00 to 54.00MHz in 4 bands.

4. A newly developed two-speed dial mechanism facilitates tuning: MAIN TUNING knob (inner) for closer tuning covers a change of 25kHz by one complete rotation, and QUICK TUNING knob (outer) covers a change of 100kHz similarly. You can tune in quickly with pin-point accuracy. This feature is very useful in receiving SSB signals.

5. The main dial is graduated at 1kHz intervals and provides accurate readings up to 100kHz, while the sub-dial is graduated at 50 and 100kHz intervals for reading frequencies up to 1MHz per rotation.

6. A total of 20 fixed channels (5 channels for each band) for all-mode operation. All the necessary crystal oscillator elements are available as optional accessories. Each of working channels can be visually checked by the KENWOOD's unique channel indicator.

7. A noise blanker (NB) circuit of the type normally found in many other HF products of our make is included to eliminate pulse noise such as ignition noise.

8. For improved FM-mode operation, a squelch circuit combined with a noise detector circuit and Schmidt circuit is added to the FM unit.

9. A tuner which uses a voltage variable capacitor is built in the receiver RF stage to minimize cross-talk and spurious interference, and a high "Q" tuning circuit in the antenna input stage for excellent selectivity.

10. Speaker output is free from distortion because of the use of amplification type AGC circuit. Signals transmitted are accompanied by little or no splutter and free from distortion thanks to the adoption of ALC circuit. The AGC circuit comprises such time-constant element that this constant is "slow" in SSB mode but "fast" in FM, AM or CW mode.

11. The built-in marker signal circuit enables you to calibrate the tuning dial precisely at 100kHz intervals. By setting the CALIBRATE switch to ON' the receiver RF input circuit is disabled, thus permitting frequency calibration without being disturbed by external signals.

12. The unique "S" meter provides accurate reading without causing "scale-out" even when unusually strong FM signal comes in. By manipulating the center meter switch, this meter functions as a center meter (tuning meter) for pin-point tuning of FM stations.

13. The built-in RIT circuit is very useful during reception, particularly in SSB and CW modes. It is designed to be used for both VFO and fixed channel operations.

14. The transceiver operates on AC 120/220V or on DC 13.8V. It includes DC voltage multiplier of our own development, contributing much to the space-saving design of the model.

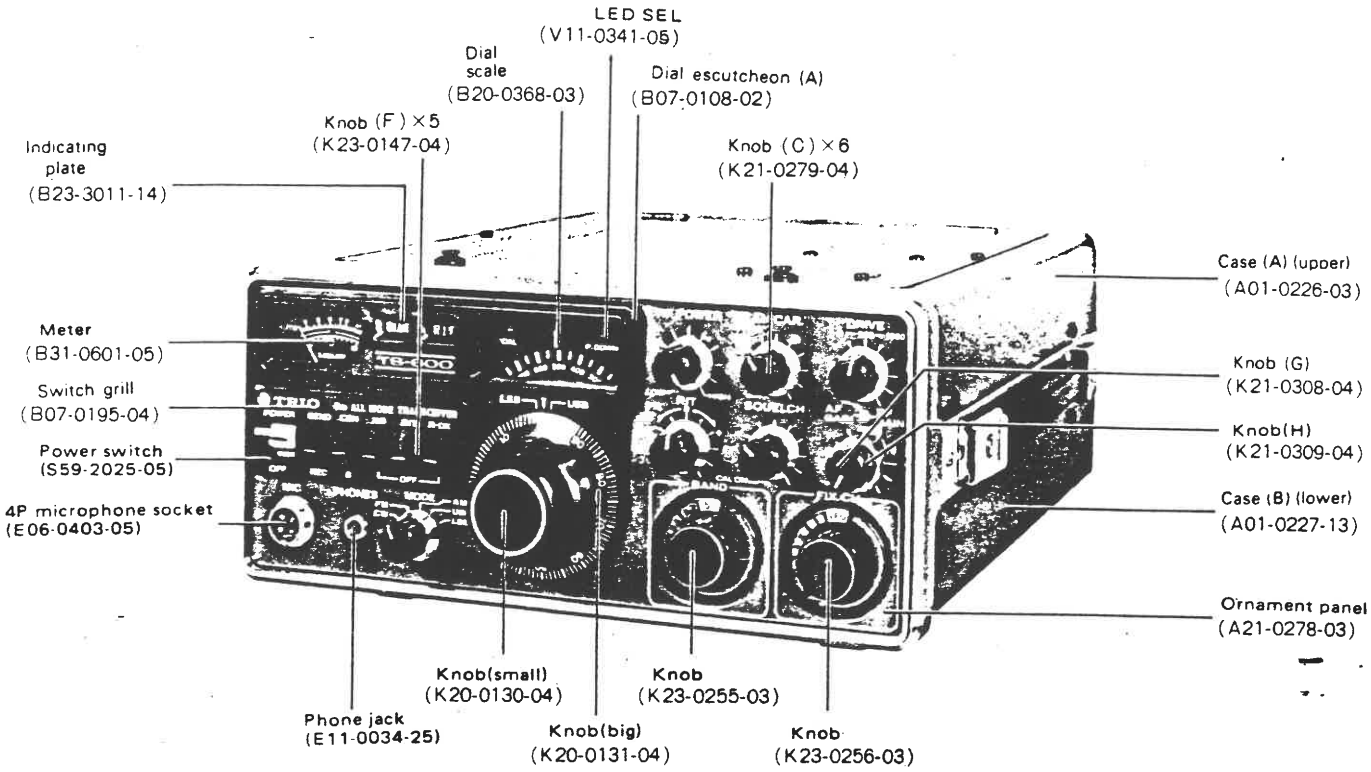
15. Significant improvements are embodied in the panel design for making this transceiver much easier to control and use. Dials and knobs are of more advanced type in visual and functional senses. Meter illumination and pilot lighting are included assuming nighttime use of the transceiver.

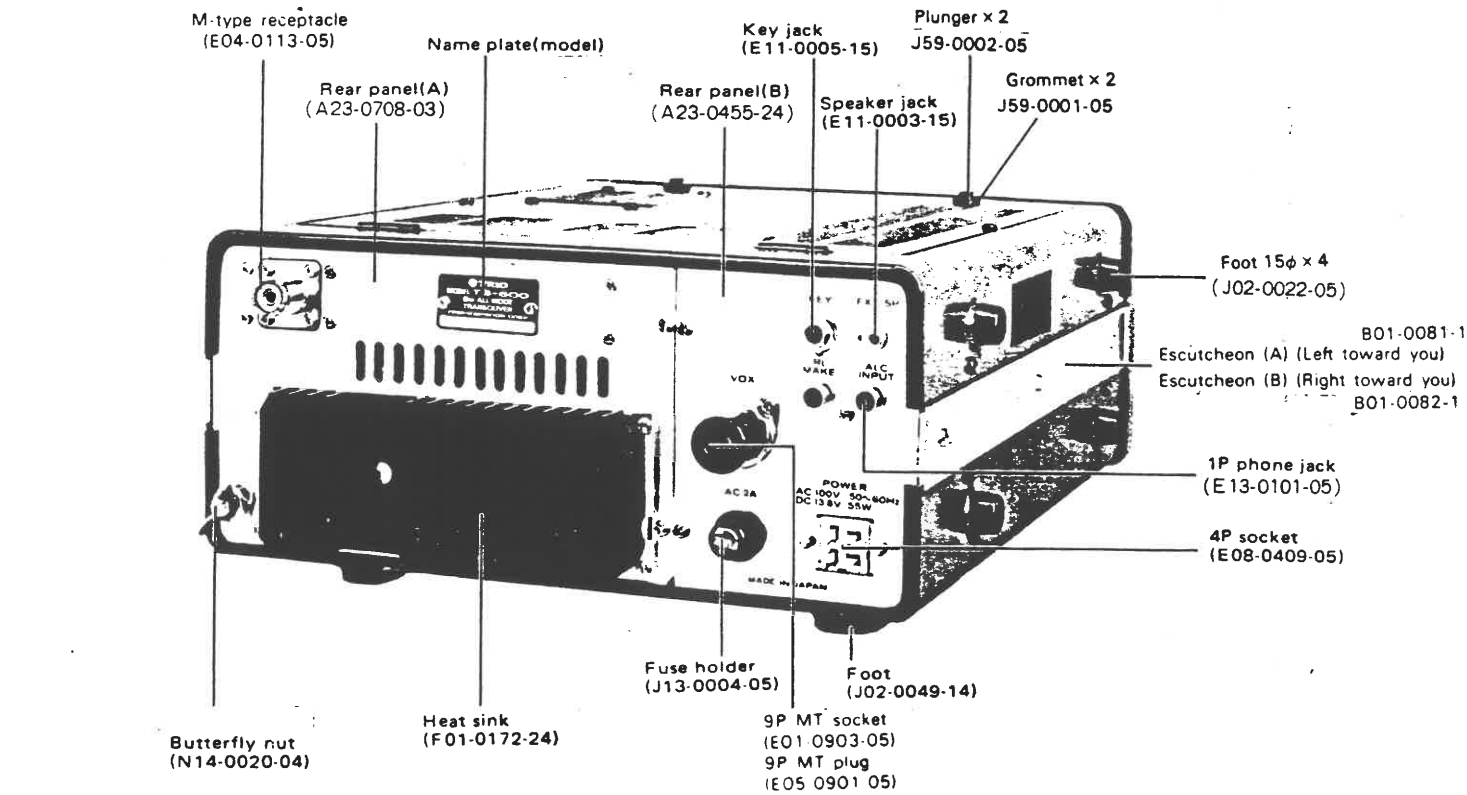
16. Visual aspects are taken as an important criterion in the designing of this transceiver. Mechanical features too have been treated similary, with particular emphasis on their reliability.

17. For assuring easier access to the internals, the transceiver enclosure or case is in two parts, complete with special mechanical details to allow the front-control panel to be detached. The final unit is also arranged so that it can be removed from the rear panel.

18. VOX operation is also available. The transceiver has provision for connection of VOX-3 obtained from KENWOOD as optional accessory.

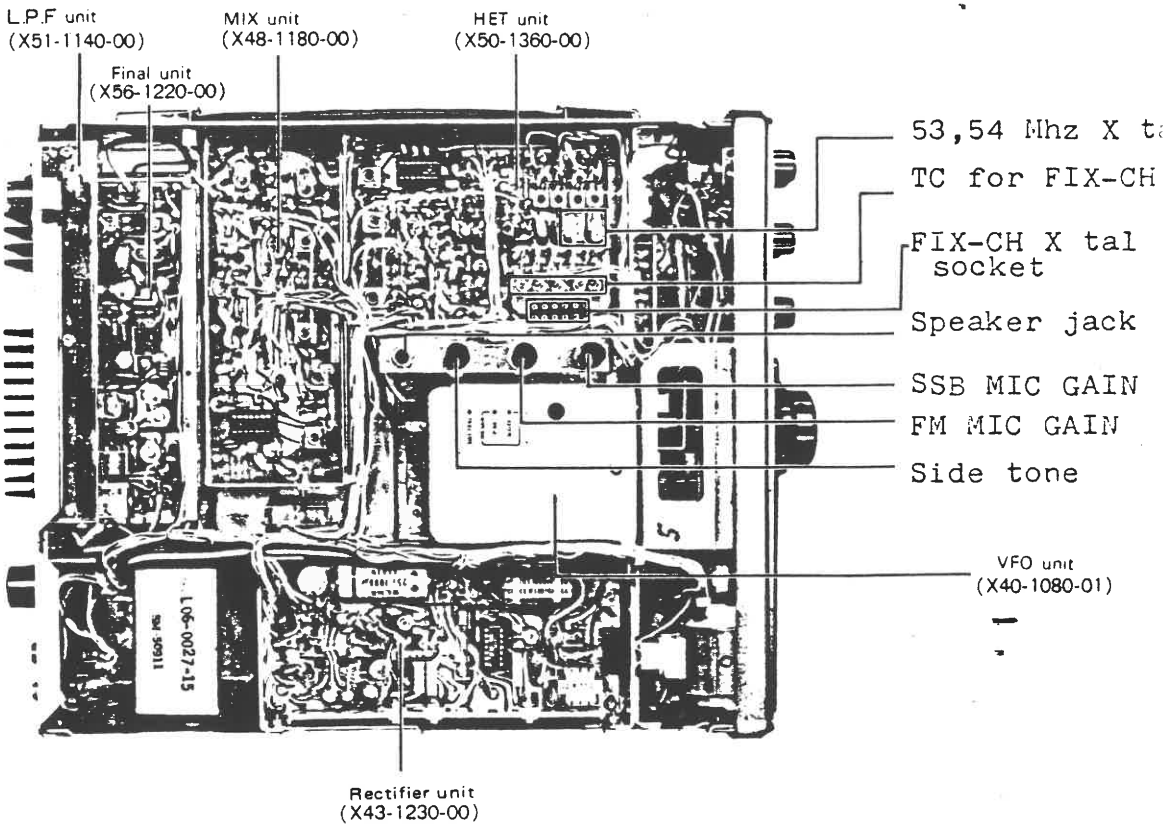
OUTSIDE VIEWS



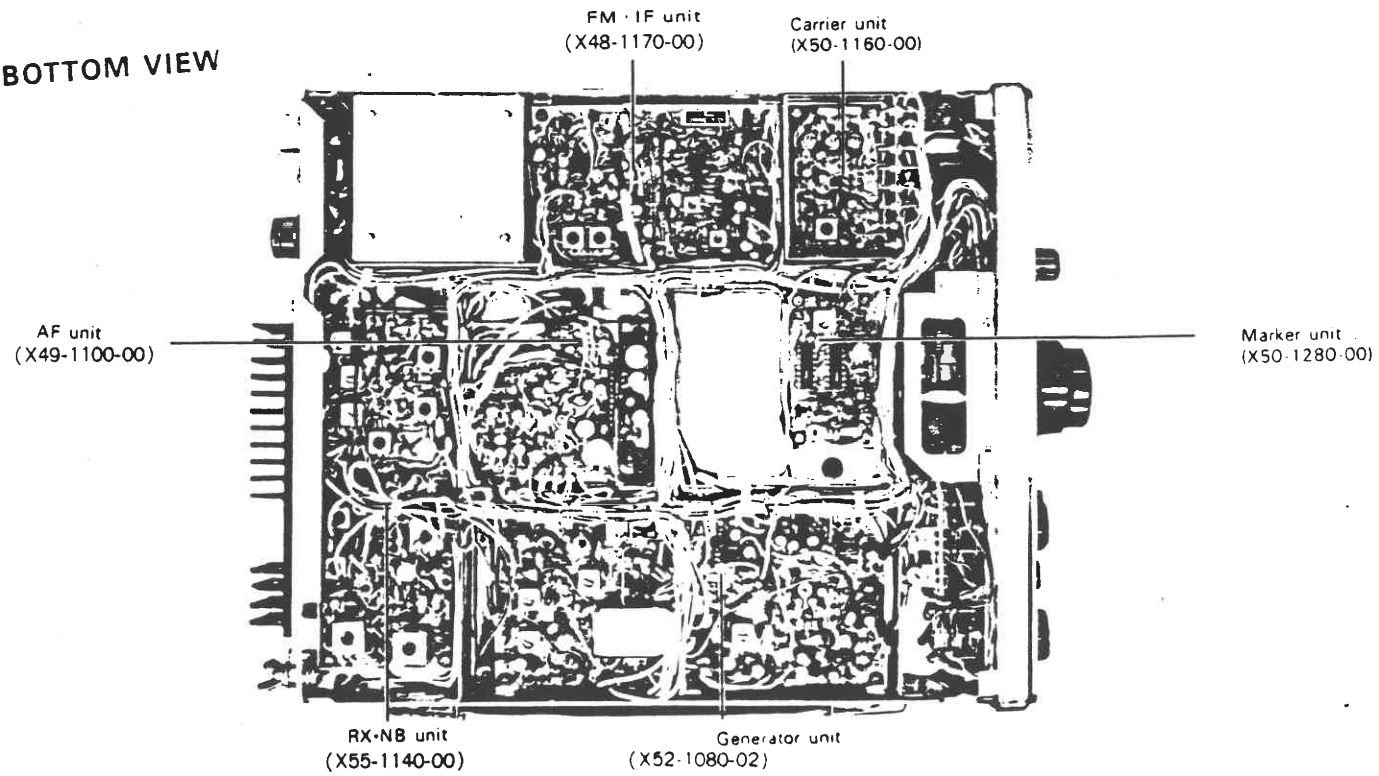


INSIDE VIEWS

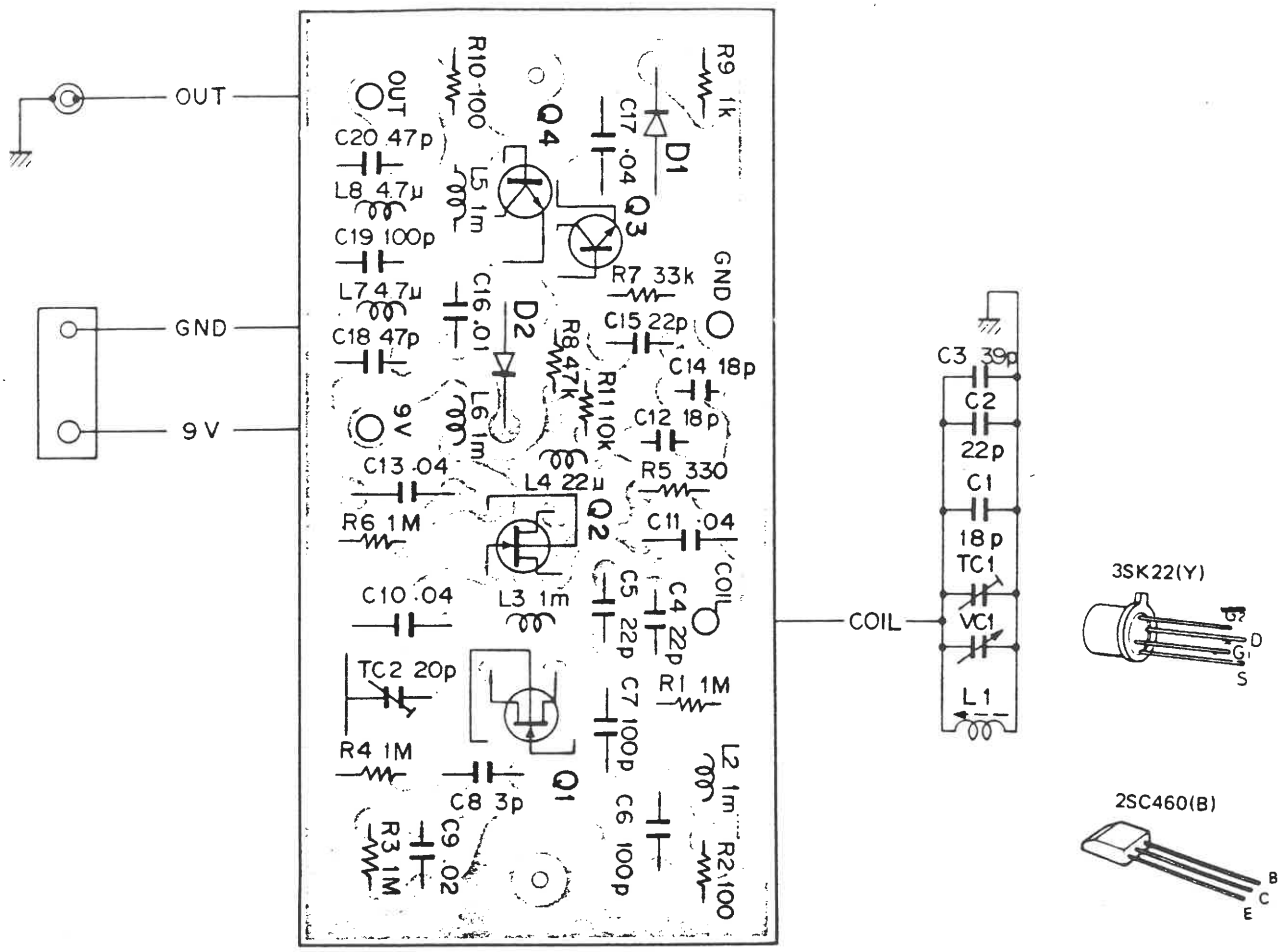
TOP VIEWS



BOTTOM VIEW

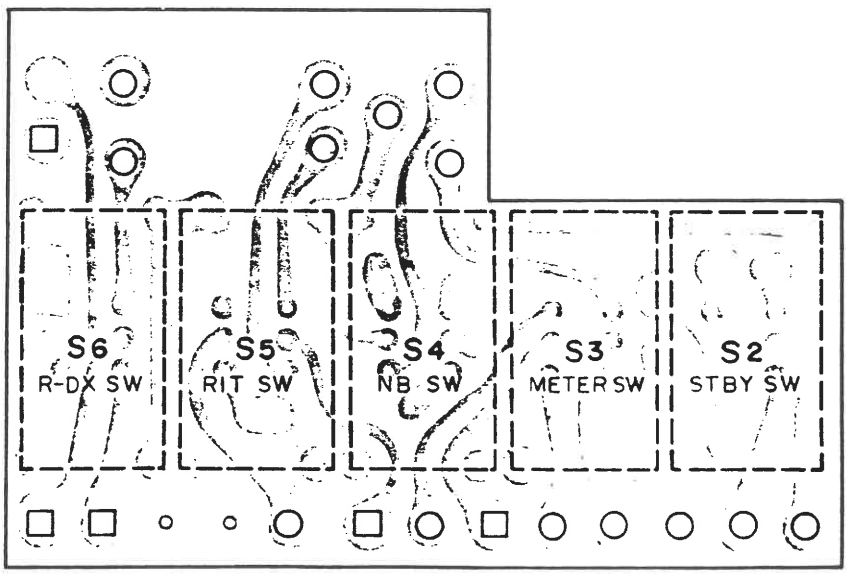


▼ VFO UNIT (X40-1080-01)

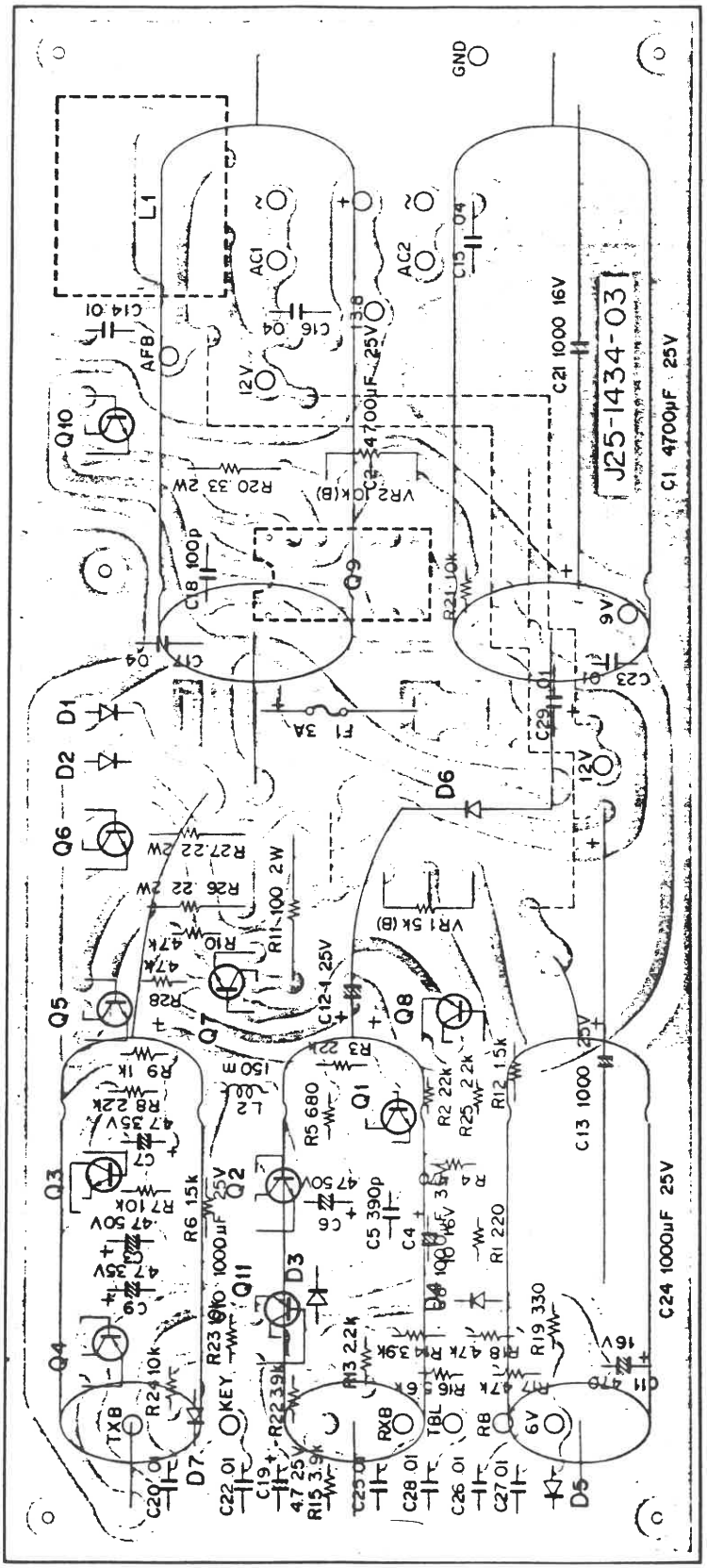


Q1, 2:3SK22(Y), Q3, 4:2SC460(B), D1, 2:1N60

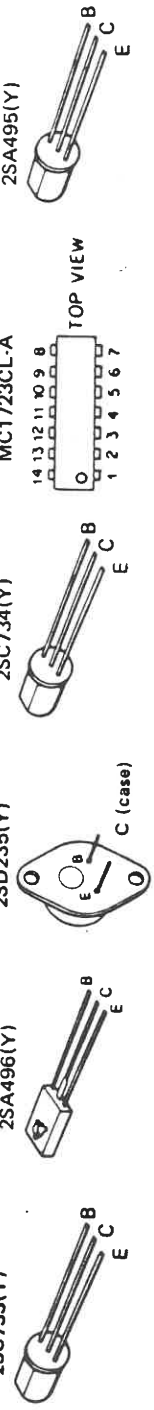
▼ SWITCH UNIT (X41-1060-00)



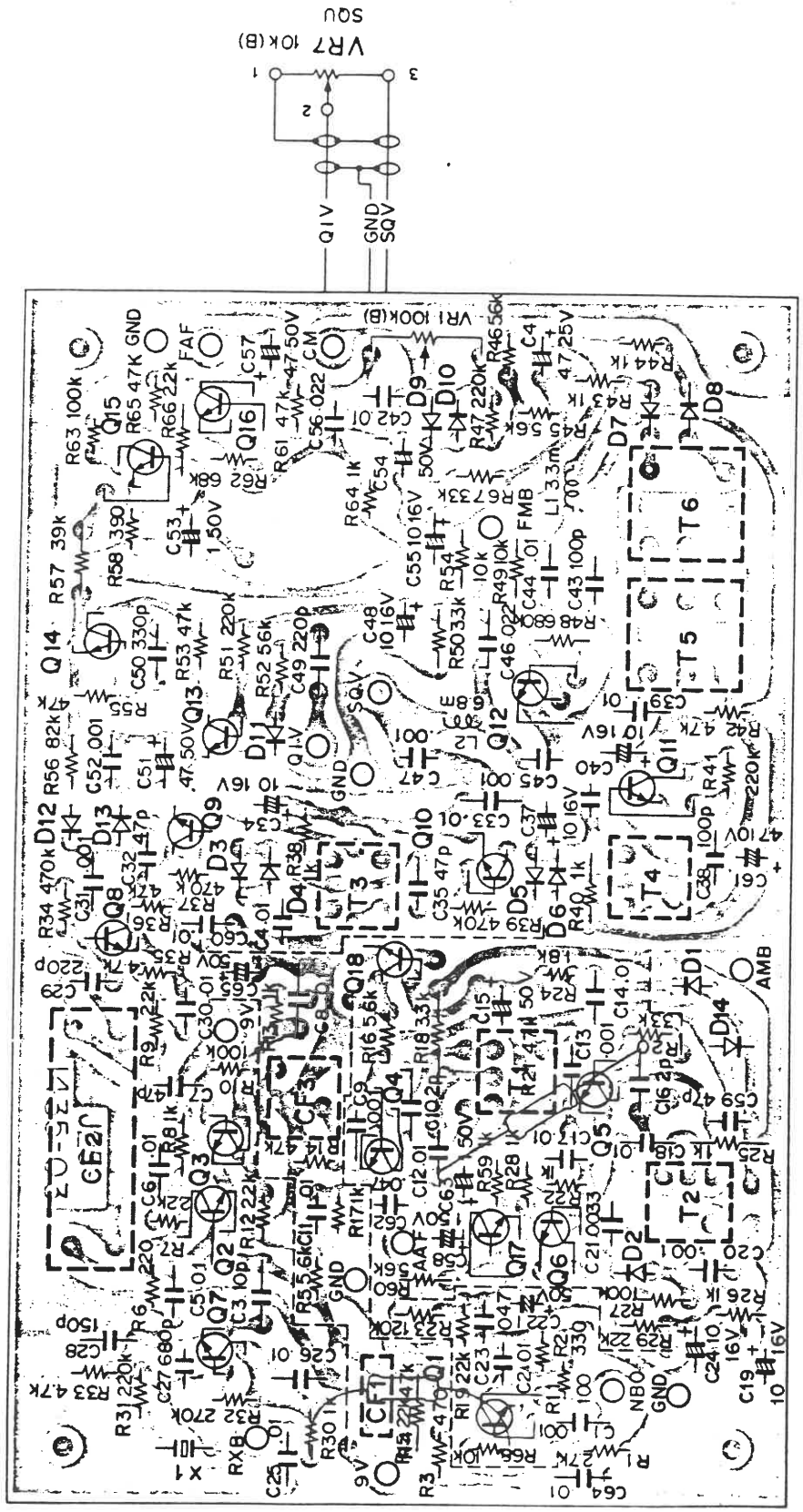
▼ RECTIFIER UNIT(X43-1230-00)



Q1, 2:2SC733(Y), Q3, 7:2SC496(Y), Q4:2SA496(Y), Q5, 6, 10:2SD235(Y), Q8:2SC734(Y), Q9:MC1723CL-A,
Q11:2SA495(Y), D1~4, 6:V06B(YEL), D5:WZ-061, D7:1S1555, D8:M4C-6

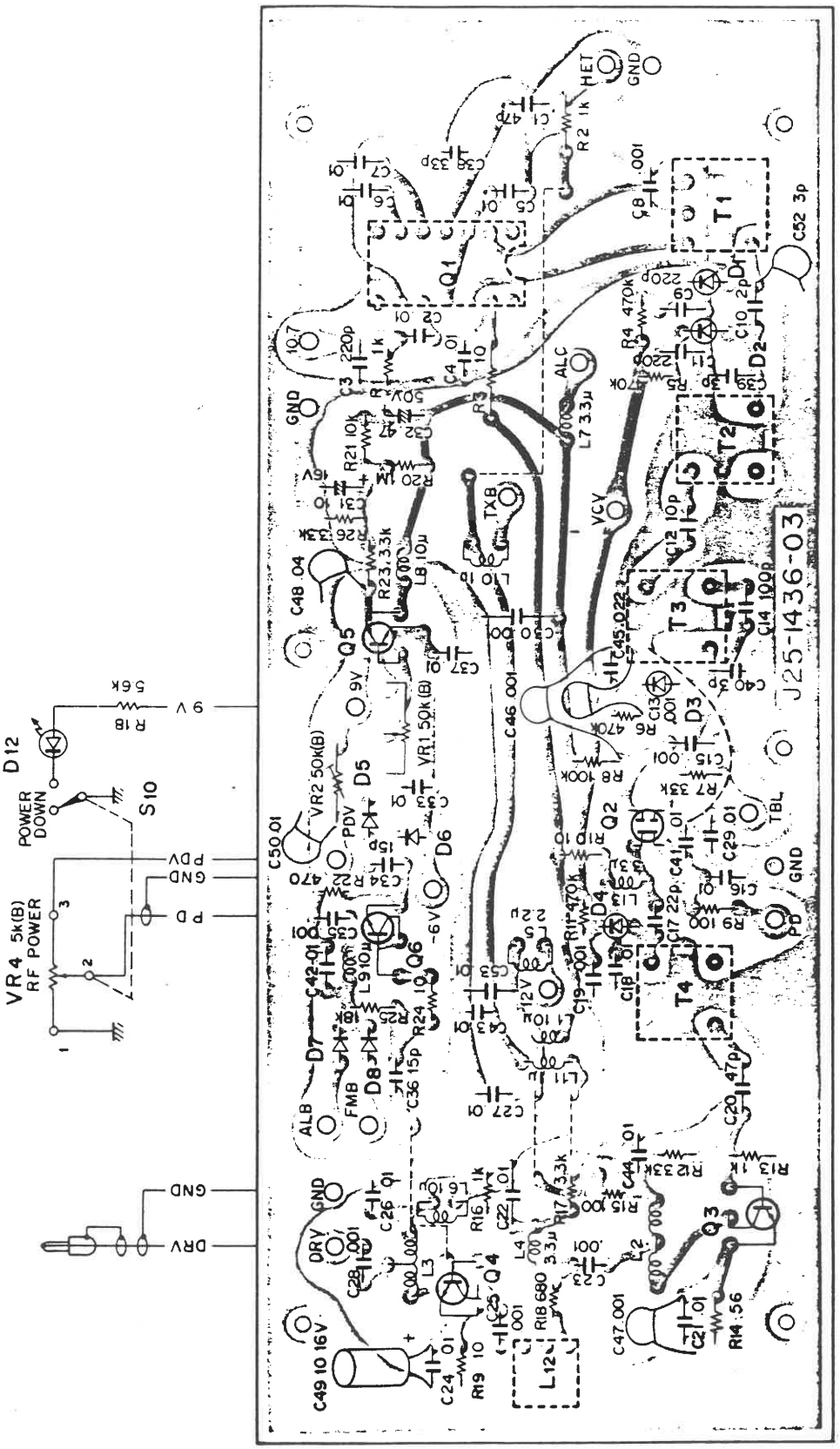


▼ FM·IF UNIT (X48-1170-00)



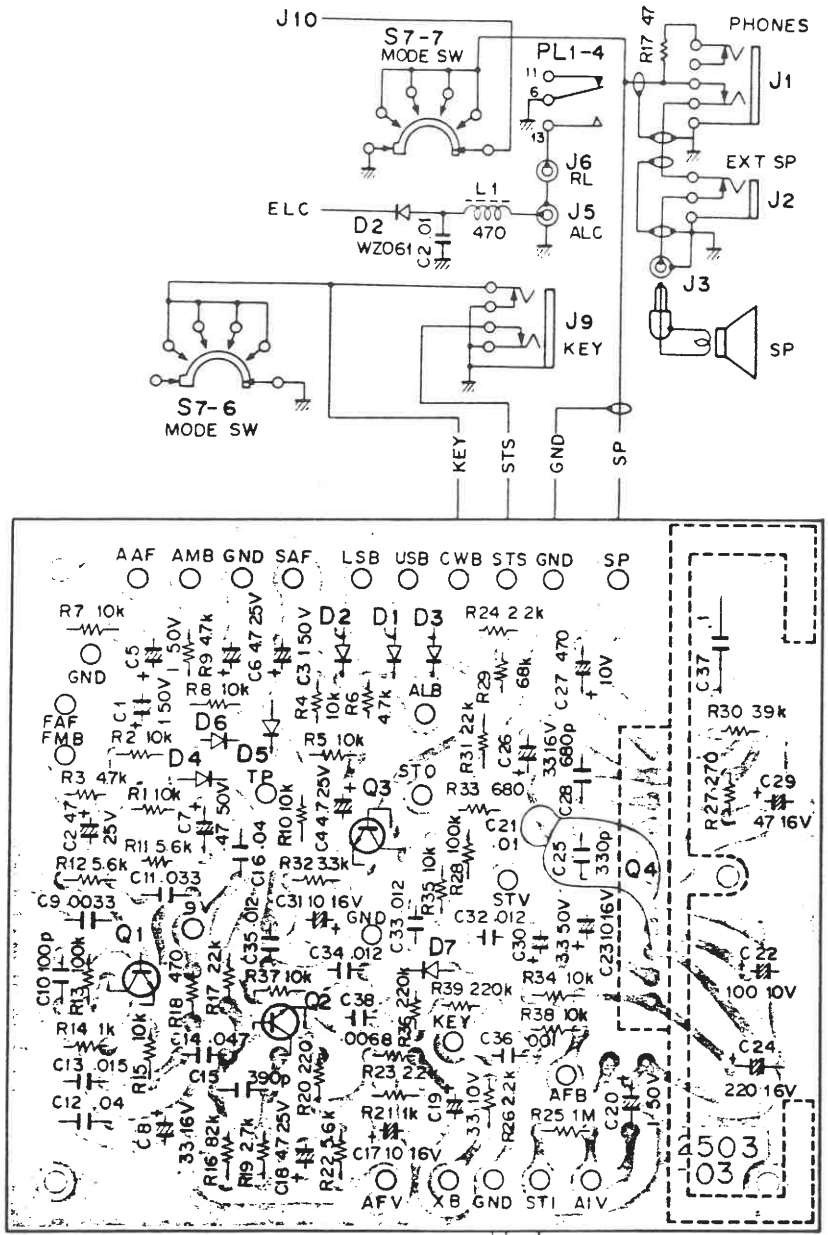
Q1~11, 18:2SC460(B), Q12~17:2SC733(Y), D1, 2, 7, 8, 12~14:1N60, D3~6, 9~11:1S1555

▼ MIX UNIT (X48-1180-00)



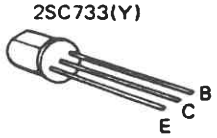
Q1:SN76514N, Q2:3SK41(L), Q3, 4:2SC1973, Q5:2SC733(Y), Q6:2SC388A, D1~4:1SV50, D5, 6:1N60, D7, 8:1S1555

▼ AF UNIT (X49-1100-00)

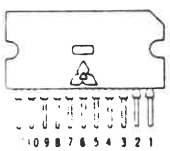


Q1, 2:2SC733(O), Q3:2SC733(Y),
Q4:AN315, D1~7:1S1555

2SC733(O)
2SC733(Y)

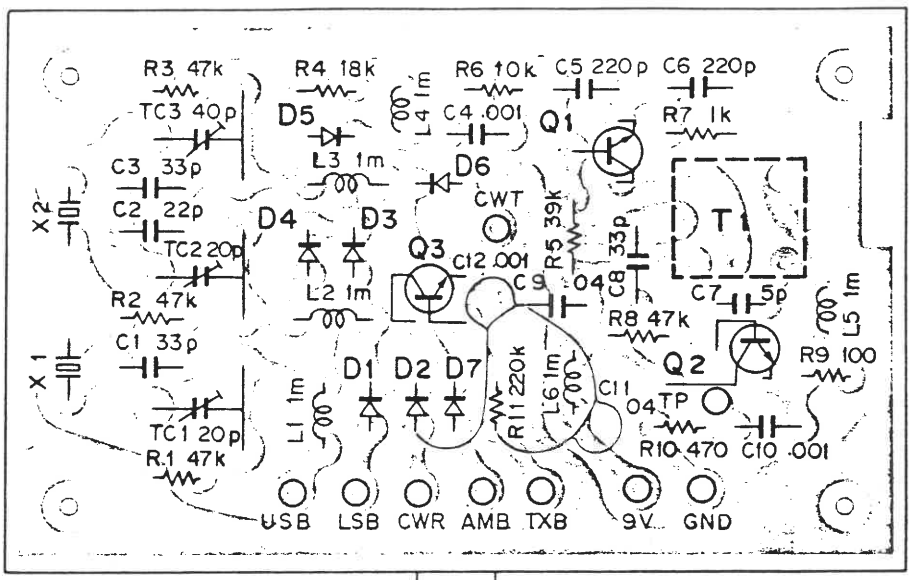


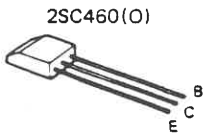
AN315

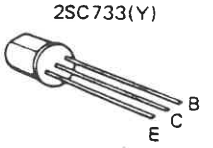


PC BOARD

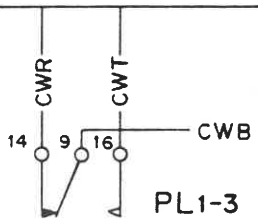
▼CAR UNIT (X50-1160-00)



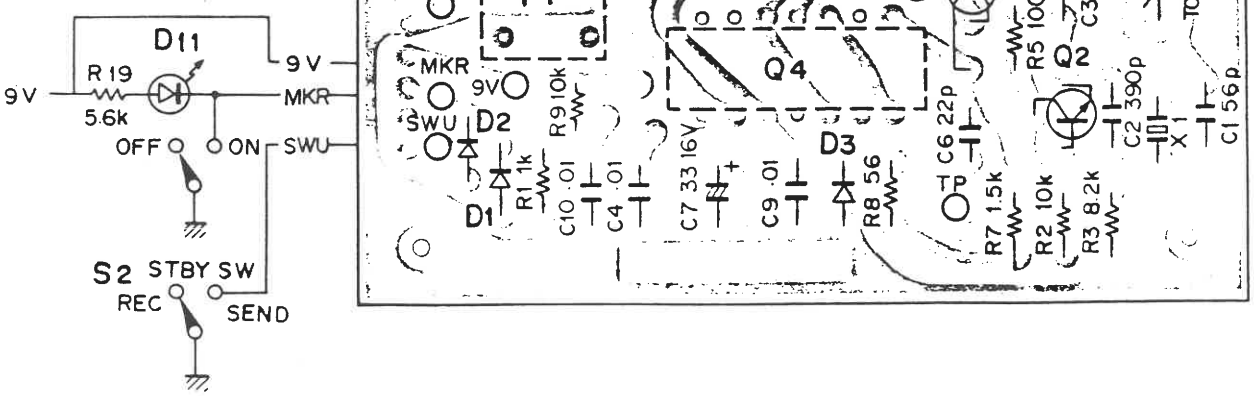




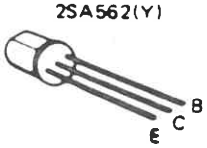
Q1:2SC460(O),
Q2, 3:2SC733(Y),
D1~7:1S1555

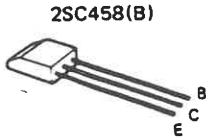


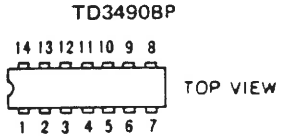
▼MKR UNIT (X50-1280-00)



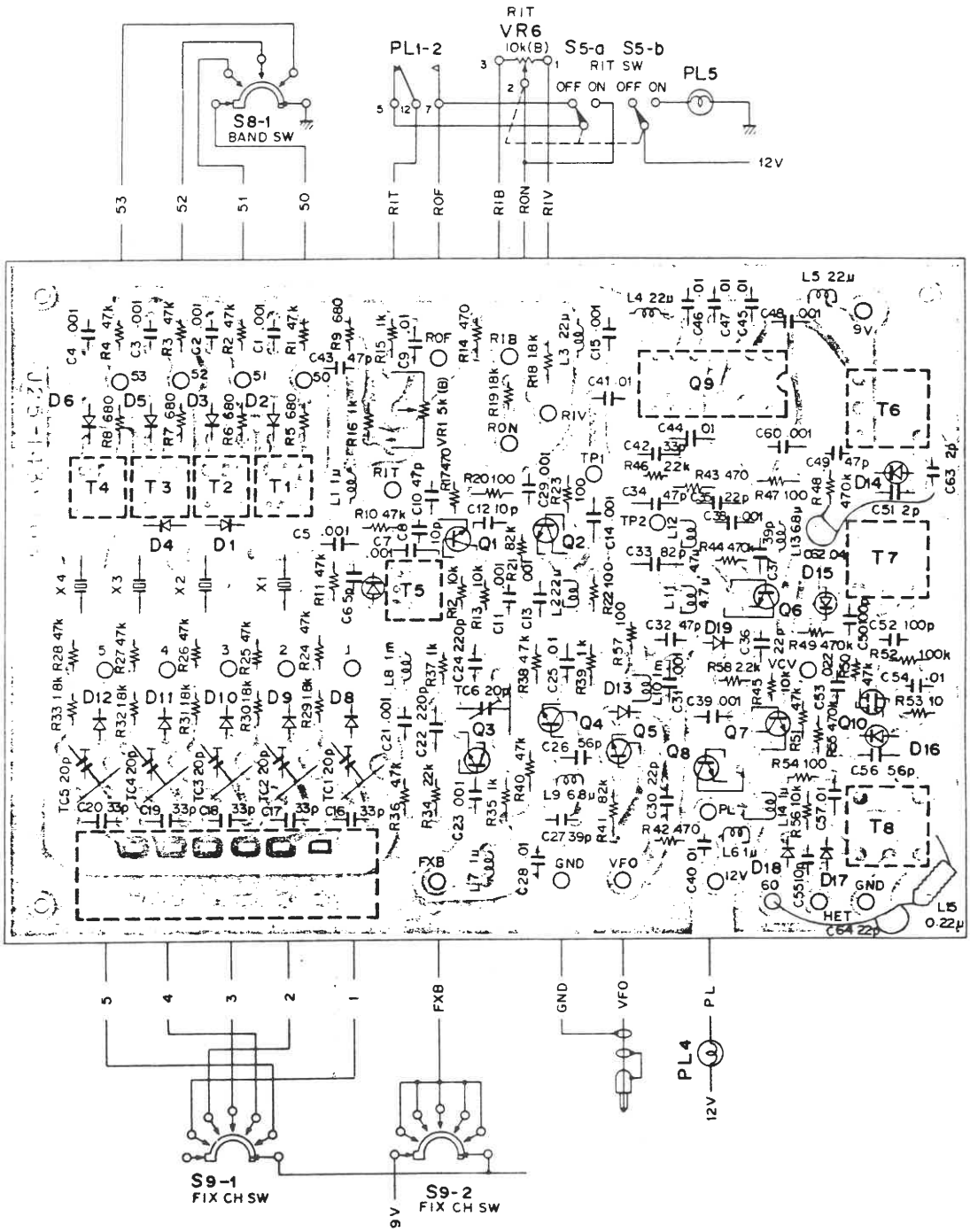
Q1:2SA562(Y), Q2:2SC458(B), Q3:2SA495(Y),
Q4, 5:TD3490BP, D1, 2:1S1555, D3:BZ-052



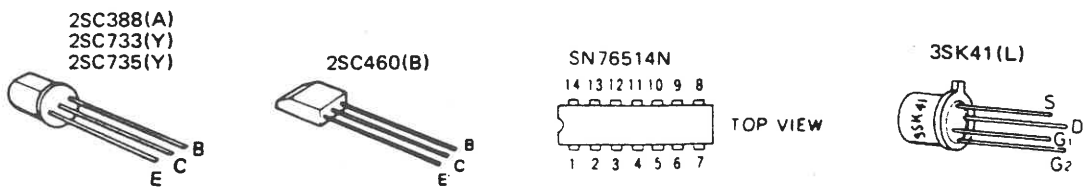




▼ HET UNIT (X50-1360-00)

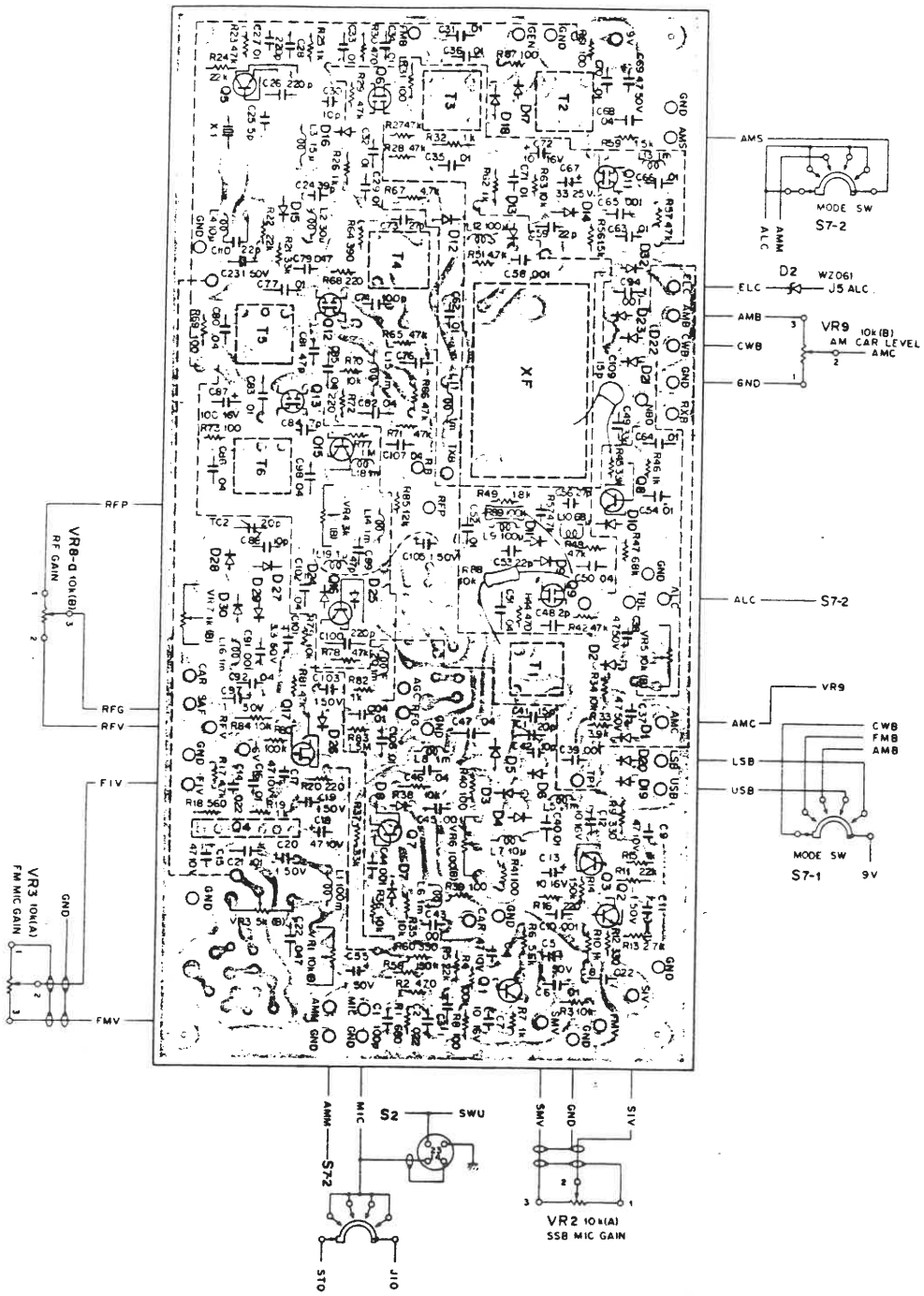


Q1:2SC388(A), Q2~6:2SC460(B), Q7:2SC733(Y), Q8:2SC735(Y), Q9:SN76514N, Q10:3SK41(L), D1~6, 8~12, 17, 18:1S1555, D7:1S2208, D14~16:1SV50, D13, 19:1N60

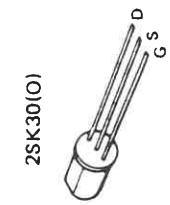


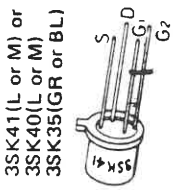
▼ GENERATOR UNIT

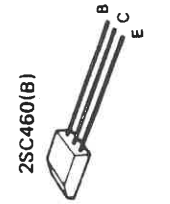
(X52-1080-02)

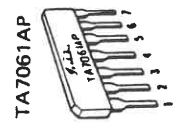


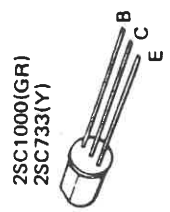
Q1, 2:2SC1000(GR), Q3, 15, 16:2SC733(Y), Q4:TA7061AP, Q5, 7, 8:2SC460(B), Q6, 9:3SK41(L or M) or 3SK40(L or M), Q11:3SK35(GR or (BL), Q12, 13:3SK35(GR), Q17:2SK30(O), D1, 2, 7, 16~22:1S1555, D3~6, 24, 25, 27~30:1N60, D8~14:1S1587, D15:1S2208, D32:V06C



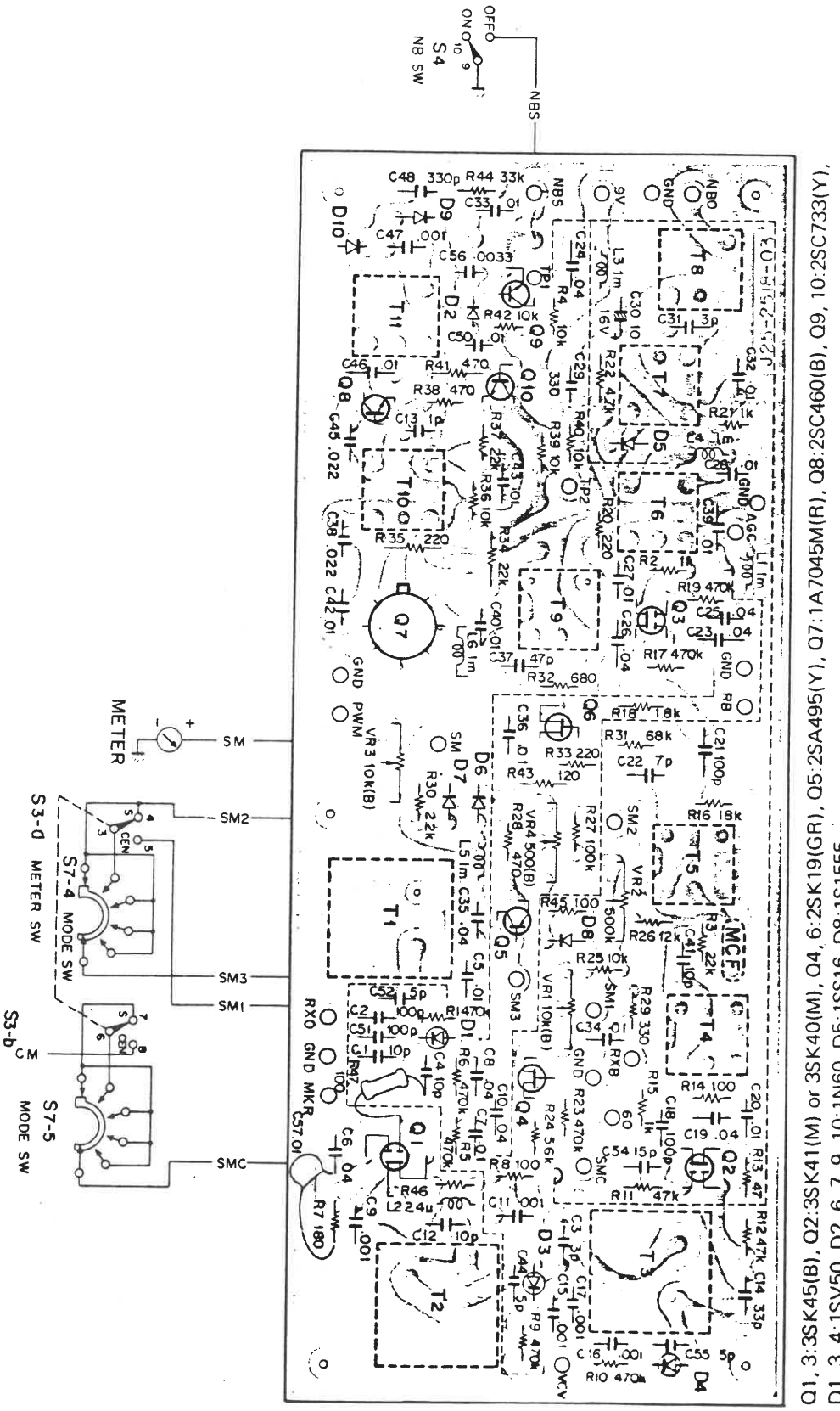


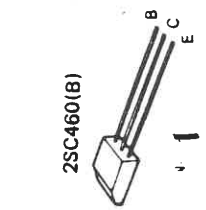


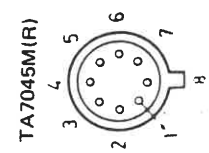


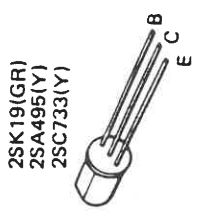


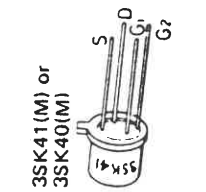
▼ RX·NB UNIT (X55-1140-00)

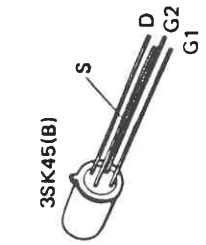






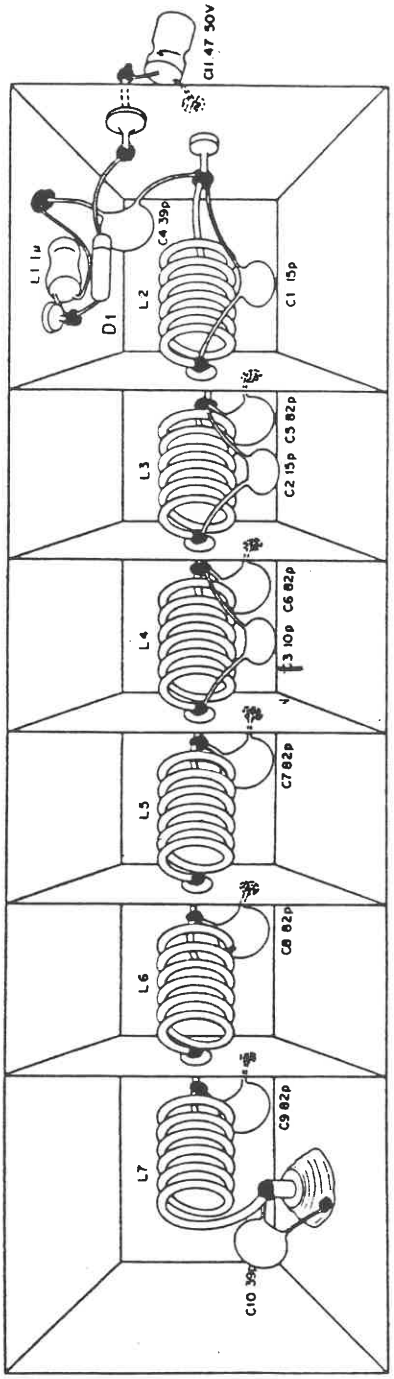






Q1, 3:3SK45(B), Q2:3SK41(M) or 3SK40(M), Q4, 6:2SK19(GR), Q5:2SA495(Y), Q7:1A7045M(R), Q8:2SC460(B), Q9, 10:2SC733(Y),
D1, 3, 4:1SV50, D2, 6, 7, 9, 10:1N60, D5:1SS16, D8:1S1555

▼LPF UNIT (X51-1140-00)



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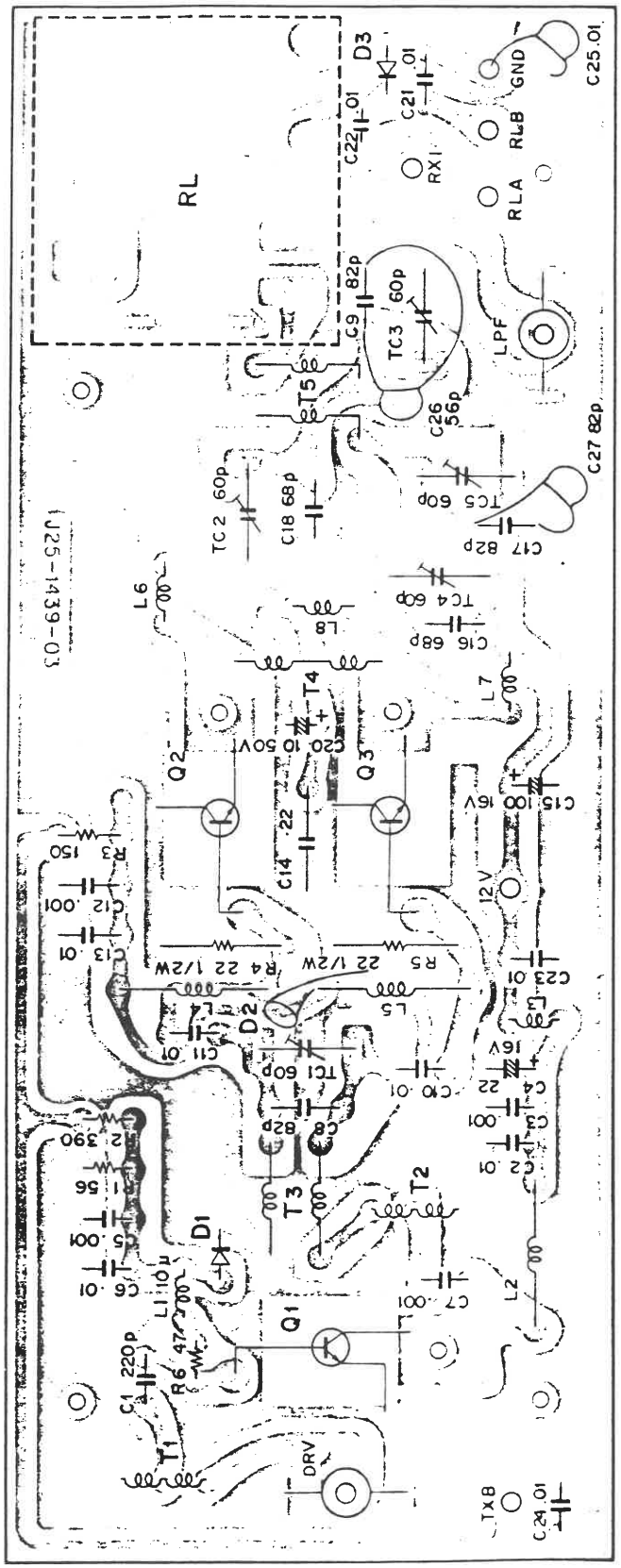
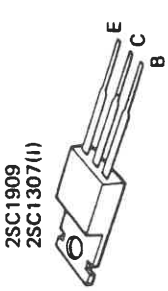


Q1:2SC1909, Q2, 3:2SC1307(I), D1, 2:VD1220, D3:V06J(GRN)



PARTS LIST

Note 1:

Only special type of resistors (example: cement, metal film, etc.) and capacitors (example: electrolytic, tantalum, mylar, temp. coeff. capacitors) are detailed in the PARTS LIST. Forthe to value of all common type components refer to the schematic diagram or the PC board illustration. Resistors not otherwise detailed are carbon type (1/4 of 1/8W).

Order carbon resistors and capacitors according to the following example:

A carbon resistor's part number is RD14BY 2E222J.

A ceramic capacitor's number is CK45F1H103Z, CC45TH1H220J.

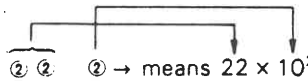
1. Type of the carbon resistor

RD14BY

RD14CY

2. Wattage
   - 1/4W → 2E
   - 1/8W → 2B

3. Resistance value



② ② ② → means 22 × 10² = 2200Ω (2.2kΩ)

Significant figure — Multiplier

Example: 221 → 220Ω 224 → 220kΩ
222 → 2.2kΩ 225 → 2.2MΩ
223 → 22kΩ

4. Tolerance
   - J = ±5% (Gold)
   - K = ±10% (Silver)

Note 2:

K: U.S.A. W: Europe T: Britain

CAPACITORS

Type I

CK	45	F	1H	103	Z
1	2	3	4	5	6

Type II

CC	45	TH	1H	220	J
1'	2	3'	4	5	6

1 = Type ..... Ceramic, Electrolytic etc.
2 = Shape ..... Round, Square etc.
3 = Temp range
3' = Temp coeff
4 = Voltage rating
5 = Value
6 = Tolerance

6. Tolerance

Type	C	D	G	J	K	M	X	Z	P	No Type
(%)	±0.25	±0.5	±2	±5	±10	±20	+40 −20	+80 −20	+100 −0	More than 10μF −10~+50 Less than 4.7μF −10~+75

6

Cord	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

(Value less than 10 pF)

CK45F

Ceramic capacitor (type I) 3

3

Cord	B	D	E	F
Operating temperature °C	−30 +85	−30 +85	−30 +85	−10 +70

CC4500....

Ceramic capacitor (type II) temperature coeff. capacitor 1' 3'

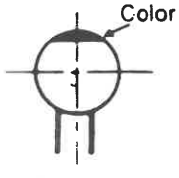
3'

Color	CH (Black)	LH (Red)	PH (Orange)	RH (Yellow)	SL (Green)	TH (Blue)	UH (Violet)
ppm/°C	0	−80	−150	−220	−330	−470	−750

5. Capacitor value

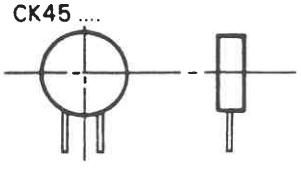
Example: 010 → 1pF
100 → 10pF
101 → 100pF
102 → 1000pF = 0.001μF
103 → 0.01μF

CC45



Type II

CK45 ....



Type I

PARTS LIST — Caution Condencer

Mylar ——— M
Ceramic ——— C
Electrolytic ——— E
Tantalum ——— T

※ New parts

Ref. No.	Parts No.	Description	Remarks
		(Y54-1240-00) GENERAL	
C1	C90-0402-00	0.001 AC150V	※
C2	CK45E1H103P	0.01μF +100%, −0%	
C3	CK45F1H103Z	0.01μF +80%, −20%	
C4~9	C90-0194-05		
C10~12	C90-0402-00	0.001μF AC150V	
R1~19	PD14BY2BOOOJ OR PD14BY2EOOOJ	OOOΩ ±5% 1/8W OOOΩ ±5% 1/4W	
D1	V11-0318-05	Diode V06J	
D2	V11-0243-05	Zener diode WZ-061	
D3~10	V11-0051-05	Diode 1N60	
D11, 12	V11-0341-05	LED TLR-102	※
VR1	R01-0402-05	50kΩ (B) SIDE TONE	※
VR2, 3	R01-3020-05	10kΩ (A) FM, SSB, MIC	
VR4	R03-0401-05	5kΩ (B) POWER, DOWN,	※
VR5, 6	R03-3055-05	10kΩ (B) RIT, DRV, AMCAR	
VR7	R01-0401-05	10kΩ (B) SQUL,	※
VR8	R08-9010-05	50kΩ (A) AF, RF, 10kΩ (B)	
VR9	R03-3055-05	10kΩ (B) RIT, DRV, AMCAR	
VR10	R12-2017-05	5kΩ (B)	
VR11, 12	R12-3036-05	10kΩ (B)	
VR13	R12-2015-05	5kΩ (B)	
VR14, 15	R12-3025-05	10kΩ (B)	
S1	S59-2025-05	Power switch	
S7	S01-4402-05	Rotary (MODE (4-8-5)	※
S8	S01-2036-05	Rotary (BAND 2-5-4)	
S9	S01-2401-05	Rotary (Fixed channel (2-4-6)	※
L1	L40-4711-03	Ferri-inductor 470μH	
L2, 3	L33-0601-05	Choke coil	
T1	L06-0027-25	Power transformer	
RL1	S51-4017-15	Relay	
X1	L77-0562-05	Crystal quartz 50MHz	
X2	L77-0563-05	Crystal Quartz 51MHz	
—	A01-0226-03	Case (Upper)	
—	A01-0227-13	Case (Lower)	
—	A13-0080-03	Frame (A)	
—	A13-0081-03	Frame (B)	
—	A13-0169-02	Frame (C)	※
—	A13-0170-03	Frame (D)	※
—	A13-0601-03	Frame (E)	※
—	A21-0278-03	Ornament panel	※
—	A23-0455-24	Rear panel (A)	※
—	A23-0708-03	Rear panel (B)	※
—	A30-0113-04	Dial back plate	※
—	B01-0081-13	Escutcheon	
—	B01-0082-13	Escutcheon (Handle side)	
—	B01-0109-05	Panel escutcheon	
—	B07-0108-02	Dial escutcheon ass'y	
—	B07-0195-04	Switch grill	

Ref. No.	Parts No.	Description	Remark
—	B10-0140-14	Front glass	
—	B19-0156-04	Filter x2 (BAND, FIX)	
—	B20-0368-03	Dial plate	
—	B21-3033-04	Dial pointer	
—	B23-3011-14	Indicating plate	
—	B23-9006-04	Knob plate 100kHz)	
—	B30-0007-05	Lamp (dial indication)	
—	B30-0079-05	Pilot lampBAND, FIXCH, ON AIR, RIT	
—	B31-0601-05	Meter	
—	B40-1428-04	Name plate (Model)	
—	B42-0666-04	Name plate (Adjustment)	
—	B43-0260-04	Name plate	
—	B46-0007-00	Warranty card	
—	B50-2523-00	Operating manual	
J1	E11-0034-15	Phone jack	
J2	E11-0003-15	Speaker jack	
J3, 6, 7	E13-0101-05	1P Pin jack x 3	
J4	E06-0403-05	4P Microphone socket	
J8	E08-0409-05	4P square socket	
J9	E11-0005-15	Key jack	
J10	E01-0903-05	9P MT socket	
—	E05-0901-09	9P MT plug	
—	E09-0204-05	2P plug	
—	E12-0001-05	Earphone plug	
—	E14-0101-05	1P Pin plug ×6	
—	E15-0038-05	Lamp socket	
—	E22-0207-05	Lug plate 1L2P	
—	E22-0405-05	Lug plate 1L4P	
—	E23-0001-05	Terminal	
—	E23-0015-04	Earth lag	
—	E23-0046-04	Terminal	
—	E33-0606-00	Wire kit	※
—	E33-0623-00	Wire kit	※
			※
			※
—	F05-2023-00	Fuse (2A) × 2	
—	F05-3022-05	Fuse (3A) × 2	
—	F05-5022-05	Fuse (5A)	
—	F10-0419-04	MIX SHIELD COVER	※
—	F10-0420-04	POWER SHIELD PLATE	※
—	F10-1204-04	CAR SHIELD PLATE	※
—	F11-0704-04	CAR SHIELD CASE	※
—	F14-0072-04	SOCKET	
—	F15-0164-14	Speaker mask	
—	F15-0165-04	Switch mask	
—	G01-0230-04	Coil spring	

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
–	J02-0022-05	Foot x4 15φ	
–	J02-0049-14	Foot x6 28φ	
–	J13-0004-05	Fuse holder (rear panel)	
–	J19-0381-04	Meter stopper	
–	J19-0382-04	Socket retainer	
–	J19-0383-04	Lamp retainer	
–	J21-0392-04	Lead wire retainer	
–	J21-0448-04	Speaker retainer	
–	J21-1192-04	Rotary switch retainer	
–	J21-1193-04	Mounting metal	
–			
–			
–	J30-0061-04	Rubber spacer x2	
–	J30-0501-04	spacer x 2	
–	J32-0220-04	Hex. boss	
–	J32-1030-14	Round boss x2 (front foot)	
–	J39-0028-04	Spacer hardware x2	
–	J59-0001-05	Grommet x2	
–	J59-0002-05	Plunger x2	
–	K01-0063-05	Handle	
–	K20-0130-04	Knob (big) main (A)	
–	K20-0131-04	Knob (small) main (B)	
–	K21-0279-04	Knob (C)	
–	K21-0308-04	Knob (G) AF	
–	K21-0309-04	Knob (H) RF	
–	K23-0057-04	Knob x3 pcs Rubber	
–	K23-0147-03	Knob F	
–	K23-0255-03	Knob (BAND)	
–	K23-0256-03	Knob (FIX)	
–	T13-0051-05	Speaker	
–	T91-0029-05	Microphone	
–	X40-0080-01	VFO unit	
–	X41-1060-00	Switch unit	
–	X42-1040-00	AC power cord ass'y	
–	X42-1050-00	DC power cord ass'y	
–	X43-1230-00	Rectifier unit	
–	X48-1170-00	FM·IF unit	
–	X48-1180-00	MIX unit	
–	X49-1100-00	AF unit	
–	X50-1160-00	CAR unit	
–	X50-1280-00	MARCAR unit	
–	X50-1360-00	HET unit	
–	X51-1140-00	LPF unit	
–	X52-1080-02	GEN unit	
–	X55-1140-00	RX·NB unit	
–	X56-1220-00	FINAL unit	

VFO(X40-1080-01)

C1	CC45CH1H180J		18pF	±5%
C2	CC45CH1H220J		22pF	±5%
C3	CC45PG1H390J		39pF	±5%
C4	CC45PG1H220J		22pF	±5%
C5	CC45LG1H220J		22pF	±5%
C6, 7	CM93F2A101J(DM)	MICA	100pF	±5%

Ref. No.	Parts No.	Description			Remarks
C8	CC45CH1H030D	MICA	3pF	±0.5pF	
C9	CK45E1H203P		0.02μF	+100%, −0%	
C10, 11	CK45E1H403P		0.04μF	+100%, −0%	
C12	CC45CH1H180J		18pF	±5%	
C13	CK45E1H403P		0.04μF	+100%, −0%	
C14	CC45CH1H180J		18pF	±5%	
C15	CC45CH1H220J		22pF	±5%	
C16	CK45E1H103P		0.01μF	+100%, −0%	
C17	CK45E1H403P		0.04μF	+100%, −0%	
C18	CC45SL1H470J		47pF	±5%	
C19	CC45SL1H101J		100pF	±5%	
C20	CC45SL1H470J		47pF	±5%	
R1~11	PD14CY2E○○○J	○○○Ω		±5% 1/4W	
Q1, 2	V09-0020-05	3SK22(Y)			
Q3, 4	V03-0079-05	2SC460(B)			
D1, 2	V11-0051-05	1N60			
L1	L32-0166-05	OSC COIL			
L2, 3	L40-1021-03	Ferri-inductor	102K		
L4	L40-2201-03	Ferri-inductor	220K		
L5, 6	L40-1021-03	Ferri-inductor	102K		
L7, 8	L40-4791-02	Ferri-inductor	4R7K		
TC1	C03-0001-05	VC			
TC2	C05-0013-15	20P			
VC1	C01-0196-05	VC			
–	A01-0169-23	VFO case			
–	B42-0010-04	Name plate			
–	D22-0011-05	Shaft coupling			
–	E08-0204-05	2P jack			
–	E13-0101-05	1P jack			
–	E22-0207-05	Lug			
–	E23-0015-04	Oval lug terminal x 2			
–	E23-0046-04	Wrapping terminal x 4			
–	F07-0231-24	VFO cover			
–	F10-0249-14	VFO shield plate			
–	F11-0010-04	VFO box (G)			
–	G03-0009-04	Spring			
–	J21-0895-03	VFO variable capacitor retainer			
–	J21-1156-13	VFO mounting fitting			
–					
–	X41-1020-00	Gear unit			

SWITCH (X41-1060-00)

S2~6	S36-2026-15		
–	E23-0046-04		

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
–	E23-0047-04	TERMINAL	

DC CORD ASS'Y (X42-1050-00)

–	E09-0426-05	4P PLUG	
–	F05-5022-05	FUSE 5A	
–	J13-0029-05	FUSE HOLDER	
–	J41-0006-00	Cord bushing	

POWER SUPPLY CORD ASS'Y (X42-1040-20)

–	E09-0426-05	4P PLUG	△✱
–	E30-0545-05	AC CABLE	△
–	J41-0006-00	Cord bushing	△

POWER SOURCE (X43-1230-00)

C1, 2	CE02W1C472	E	4700μF	16WV		
C3	CE04W1HR47(RL)	E	0.47μF	50WV		
C4	CE04W1C100(RL)	E	10μF	16WV		
C5	CC45SL1H101J		100pF	± 5 %		
C6	CE04W1HR47(RL)	E	0.47μF	50WV		
C7	CE04W1V4R7(RL)	E	4.7μF			
C8	CE02W1V102	E	1000μF			
C9	CE04W1V4R7(RL)	E	4.7μF			
C10	CE02W1E102	E	1000μF	25WV		
C11	CE04W1C471(RL)	E	470μF	16WV		
C12	CE04W1E010(RL)	E	1μF	25WV		
C13	CE02W1E102		1000μF	25WV		
C14	CK45F1H103Z		0.01μF	+80%, −20%		
C15~17	CK45F1H403Z		0.04μF	+80%, −20%		
C18	CC45SL1H391J		390pF	± 5 %		
C19	CE04W1E4R7(RL)	E	4.7μF	25WV		
C20	CK45F1H103Z		0.01μF	+80%, −20%		
C21	CE02W1C102	E	1000μF	16WV		
C22, 23	CK45F1H103Z		0.01μF	+80%, −20%		
C24	CE02W1E102	E	1000μF	25WV		
C25~29	CK45F1H103Z		0.01μF	+80%, −20%		
R1~28	PD14CY2E000J OR		000Ω	± 5 %	¼W	
R11	RN14AB3D000K		000Ω	± 5 %	2 W	
R20	R92-0602-25		0.32Ω			✱
R26, 27	R92-0601-05		0.22Ω			✱
Q1	V03-0123-05	TR	2SC733(Y)			
Q2	V03-0126-05		2SC734(Y)			
Q3	V03-0336-05		2SC496(Y)			
Q4	V01-0113-05		2SA496(Y)			
Q5, 6	V04-0046-05		2SD235(Y)			
Q7	V03-0336-05		2SC496(Y)			
Q8	V03-0128-05		2SC734(Y)			
Q9	V30-0218-05	IC	μC1723(CL-A)			✱
Q10	V04-0046-05	TR	2SD235(Y)			
Q11	V01-0037-05		2SA495(O) OR (Y)			
D1~4	V11-0219-05	DIODE	V06B			

Ref. No.	Parts No.	Description	Remarks
D5	V11-0243-05	DIODE WZ-061	
D6	V11-0219-05	V06B	
D7	V11-0076-05	1S1555	
D8	V30-0209-05	M4C-6	✱
VR1	R12-2014-05	5kΩ (B)	
VR2	R12-3022-05	10kΩ (B)	
L1	L15-0016-05	CHOKE	
L2	L40-1545-06	Ferri-inductor 154V	
–	E02-1401-05	IC SOCKET	
–	E23-0047-04	TERMINAL	
–	E23-0048-04	TERMINAL	
–	F05-3022-05	FUSE 3A	
–	F11-0253-03	SHIELD CASE	
–	F20-0078-05	MICA	
–	J13-0401-05	FUSE HOLDER × 2	✱
–			

I F (X48-1170-00)

C1	CK45D1H102M		0.001μF	±20%	
C2	CK45D1H103M		0.01μF	+80%, −20%	
C3	CC45SL1H100D		10pF	±0.5pF	
C4~6	CK45D1H102M		0.001μF	±20%	
C7	CC45SL1H470J		47pF	± 5 %	
C8	CK45D1H103M		0.01μF	+80%, −20%	
C9	CK45D1H102M		0.01μF	±20%	
C10	CC45SL1H100D		10pF	±0.5pF	
C11	CQ92M1H103K	M	0.01μF	±10%	
C12	CK45D1H103Z		0.01μF	+80%, −20%	
C13	CK45D1H102M		0.001μF	±20%	
C14	CK45D1H103Z		0.01μF	+80%, −20%	
C15	CE04W1H010(RL)	E	1μF	50WV	
C16	CC45SL1H020D		2pF	±0.5pF	
C17	CQ92M1H103K	M	0.01μF	±10%	
C18	CK45D1H103Z		0.01μF	+80%, −20%	
C19	CE04W1C100(RL)	E	10μF	16WV	
C20	CK45D1H102M		0.001μF	±20%	
C21	CQ92M1H332K	M	0.0033μF	±10%	
C22	CE04W1H010(RL)	E	1μF	50WV	
C23	CQ92M1H473K	M	0.047μF	±10%	
C24	CE04W1C100(RL)	E	10μF	16WV	
C25, 26	CK45D1H103Z		0.01μF	+80%, −20%	
C27	CM93O1H151J(DM)	MICA	150pF	± 5 %	
C28	CM93O1H681J(DM)	MICA	680pF	± 5 %	
C29	CC45SL1H221J		220pF	± 5 %	
C30	CK45D1H103Z		0.01μF	+80%, −20%	
C31	CK45D1H102M		0.001μF	±20%	
C32	CC45SL1H100D		10pF	±0.5pF	
C33	CK45D1H103Z		0.01μF	+80%, −20%	
C34	CE04W1C100(RL)	E	10μF	16WV	
C35	CC45SL1H100D		10pF	±0.5pF	
C36	CK45D1H103Z		0.01μF	+80%, −20%	
C37	CE04W1C100(RL)	E	10μF	16WV	
C38	CC45SL1H101J		100pF	± 5 %	
C39	CK45D1H103Z		0.01μF	+80%, −20%	
C40	CE04W1C100(RL)	E	10μF	16WV	

PARTS LIST

Ref. No.	Parts No.	Description			Re-marks
C41	CE04W1E4R7(RL)	E	4.7μF	25WV	
C42	CK45D1H103Z		0.01μF	+80%, −20%	
C43	CC45SL1H101J		100pF	± 5 %	
C44	CK45D1H103Z		0.01μF	+80%, −20%	
C45	CK45D1H102M		0.001μF	±20%	
C47	CK45D1H102M		0.001μF	±20%	
C48	CE04W1C100(RL)	E	10μF	16WV	
C49	CC45SL1H221J		220pF	± 5 %	
C50	CC45SL1H331J		330μF	50WV	
C51	CE04W1HR47(RL)	E	0.4μF	50WV	
C52	CK45D1H102J		0.001μF	±20%	
C53, 54	CE04W1H010(RL)	E	1μF	50WV	
C56	CE04W1C100(RL)	E	10μF	16WV	
C57	CE04W1H4R7(RL)	E	4.7μF	50WV	
C58	CE04W1H010(RL)	E	1μF	50WV	
C59	CC45SL1H100D		10pF	±0.5pF	
C60	CK45D1H102M		0.001μF	±20%	
C61	CK45D1H103Z		0.01μF	+80%, −20%	
C62	CQ92M1H473K	M	0.047μF	±10%	
C63	CE04W1H010(RL)	E	1μF	50WV	
C64	CK45D1H103Z		0.01μF	+80%, −20%	
C65	CE04W1H010(RL)	E	1μF	50WV	
R1~67	PD14CY2EOOOJ or		OOOΩ	± 5 %	¼W
R15, 21	PD14BY2EOOOJ		OOOΩ	± 5 %	¼W
Q1~11	V03-0079-05		2SC460(B)		
Q12, 13	V03-0123-00		2SC733(Y)		
Q14	V03-0094-05		2SC458(B)		
Q15~17	V03-0123-00		2SC733(Y)		
Q18	V03-0079-05		2SC460(B)		
D1, 2	V11-0051-05		1N60		
D3~6	V11-0076-05		1S1555		
D7, 8	V11-0051-05		1N60		
D9~11	V11-0076-05		1S1555		
D12~12	V11-0051-05		1N60		
VR1	R12-5014-05		100kΩ(B)		
T1, 2	L30-0294-05				*
T3, 4	L30-0199-05				
T5	L30-0006-05				
T6	L30-0007-05				
L1	L40-3325-04		3.3mH		
L2	L40-6825-04		6.8mH		
CF1	L72-0014-05	Filter	SFE10.7MA5		
CF2	L72-0024-05	do	CFR-445E		
CF3	L72-0044-05	do	CFU-455I		*
X1	L77-0714-05	X'tal	11.155MHz		
E	E23-0047-04	Terminal			

Ref. No.	Parts No.	Description			Re-marks
MIX(X48-1180-00)					
C1	CC45SL1H100D		10pF	±0.5pF	
C2	CK45F1H103Z		0.01μF	+80%, −20%	
C3	CC45SL1H221J		220pF	± 5 %	
C4~7	CK45F1H103Z		0.01μF	+80%, −20%	
C8	CK45D1H102M		0.001μF	±20%	
C9	CC45SL1H221J		220pF	± 5 %	
C10	CC45SL1H020D		2pF	±0.5pF	
C11	CC45SL1H221J		220pF	± 5 %	
C12	CC45SL1H100D		10pF	±0.5pF	
C13	CK45D1H102M		0.001μF	±20%	
C14	CC45SL1H101J		100pF	± 5 %	
C15	CK45D1H102M		0.001μF	±20%	
C16	CK45F1H103Z		0.01μF	+80%, −20%	
C17	CC45SL1H220J		22pF	± 5 %	
C18	CK45F1H103Z		0.01μF	+80%, −20%	
C19	CK45D1H102M		0.001μF	±20%	
C20	CC45SL1H100D		10pF	±0.5pF	
C21, 22	CK45F1H103Z		0.01μF	+80%, −20%	
C23	CK45D1H102M		0.001μF	±20%	
C24	CK45F1H103Z		0.01μF	+80%, −20%	
C25	CK45D1H102M		0.001μF	+80%, −20%	
C26, 27	CK45F1H103Z		0.01μF	±20%	
C28	CK45D1H102M		0.001μF	+80%, −20%	
C29	CK45F1H103Z		0.0μF	±20%	
C30	CK45D1H102M		0.001μF	±20%	
C31	CE04W1C100(RL)	E	10μF	16WV	
C32	CE04W1HR47(RL)	E	0.47μF	50WV	
C33	CK45F1H103Z		0.01μF	+80%, −20%	
C34	CC45SL1H100D		10pF	±0.5%	
C35	CK45D1H102M		0.001μF	±20%	
C37	CK45F1H103Z		0.01μF	+80%, −20%	
C38	CC45SL1H330J		33pF	± 5 %	
C39, 40	CC45SL1H030D		3pF	±0.5pF	
C41~45	CK45F1H103Z		0.01μF	+80%, −20%	
C45	CQ92M1H223K	M	0.022μF	±100%	
C46, 47	CK45D1H102M		0.001μF	±20%	
C48	CK45F1H403Z		0.04μF	+80%, −20%	
C49	CE04W1C100(RL)	E	10μF	16WV	
C51	CK45D1H102M		0.001μF	±20%	
C52	CC45SL1H030D	E	3pF	±0.5pF	
R1~26	PD14CY2EOOOJ		OOOΩ	± 5 %	¼W
Q1	V30-0153-05		SN76514N		
Q2	V09-0057-05		3SK41		
Q3, 4	V03-0476-05		2SC1973		*
Q5	V03-0123-05		2SC733(Y)		
Q6	V03-0053-05		2SC388A		
D1~4	V11-0447-05		1SV50		
D5, 6	V11-0051-05		1N60		
D7, 8	V11-0076-05		1S1555		
VR1	R12-2014-05		5kΩ(B)		
VR2	R12-4020-05		50kΩ(B)		
L1	L40-1001-05		10μH		
L2, 3	L34-0587-05				*

PARTS LIST

Ref. No.	Parts No.	Description	Re-marks
L4	L40-3391-03	3.3μH	
L5	L40-2291-03	2.2μH	
L6	L40-1001-03	10μH	
L7	L40-3391-03	3.3μH	
L8, 9	L40-1001-03	10μH	
L10, 11	L40-1091-03	1μH	
L12	L34-0586-05	Coil	※
L13	L40-3391-03	3.3μH	
T1～3	L34-0608-05		※
T4	L34-0585-05		※
—	E02-1401-05	IC SOCKET	
—	E23-0047-04		
—	L92-0101-05	CORE	

A F (X49-1100-00)

C1	CE04W1H010(RL)	E	1μF	50WV	
C2	CE04W1E4R7(RL)	E	4.7μF	25WV	
C3	CE04W1H010(RL)	E	1μF	50WV	
C4	CE04W1E4R7(RL)	E	4.7μF	25WV	
C5	CE04W1H010(RL)	E	1μF	50WV	
C6	CE04W1E4R7(RL)	E	4.7μF	25WV	
C7	CE04W1HR47(RL)	E	0.47μF	50WV	
C8	CE04W1E4R7(RL)	E	4.7μF	25WV	
C9	CQ92M1H332K	M	0.002μF	±10%	
C10	CC45SL1H101J		100pF	±5%	
C11	CQ92M1H333K	M	0.033μF	±10%	
C12	CK45F1H403Z		0.04μF	+80%, −20%	
C13	CQ92M1H153K	M	0.015μF	±10%	
C14	CQ92M1H473K	M	0.047μF	±10%	
C15	CC45SL1H391J		390pF	±5%	
C16	CK45F1H403Z		0.04μF	+80%, −20%	
C17	CE04W1C100(RL)	E	10μF	16WV	
C19	CE04W1A330(RL)	E	33μF	10WV	
C20	CE04W1H010(RL)	E	1μF	50WV	
C21	CK45F1H103Z		0.01μF	+80%, −20%	
C22	CE04W1A101(RL)	E	100μF	10WV	
C23	CE04W1C100(RL)	E	10μF	16WV	
C24	CE04W1C221(RL)	E	220μF	16WV	
C25	CC45SL1H331J		330pF	±5%	
C26	CE04W1E4R7(RL)	E	4.7μF	25WV	
C27	CE04W1A471(RL)	E	470μF	10WV	
C28	CC45SL1H681J		680pF	±5%	
C29	CE04W1C470(RL)	E	47μF	16WV	
C30	CE04W1H3R3(RL)	E	3.3μF	50WV	
C31	CE04W1C100(RL)	E	10μF	16WV	
C32～35	CQ92M1H123K	M	0.012μF	±10%	
C36	CK45D1H102M		0.001μF	±20%	
C37	CQ92M1H104K	M	0.4μF	±10%	
C38	CQ92M1H682K	M	0.0068μF	±10%	
R1～39	PD14CY2E000J		000Ω	±5%	
Q1, 2	V03-0123-05		2SC733(O)		

参照番号	Parts No.	Description	Re-marks
Q3	V03-0123-05	2SC733(Y)	
Q4	V30-0208-05	IC AN315	※
D1～7	V11-0076-05	1S1555	
—	E23-0047-04		
—	F01-0701-04	HEAT SINK	※

CAR(X50-1160-00)

C1	CC45TH1H330J	33pF	±5%	
C2	CC45TH1H220J	22pF	±5%	
C3	CC45SL1H330J	33pF	±5%	
C4	CC45E1H102P	0.001μF	+100%, −0%	
C5, 6	CC45SL1H221J	220pF	±5%	
C7	CC45SL1H050D	5pF	±0.5pF	
C8	CC45SL1H330J	33pF	±5%	
C9	CK45F1H403Z	0.04μF	+80%, −20%	
C10	CK45F1H103Z	0.01μF	+80%, −20%	
C11	CK45F1H403Z	0.04μF	+80%, −20%	
R1～11	PD14CY2E000J	000Ω	±5%	1/4W
Q1	V03-0079-05	2SC460(B)		
Q2, 3	V03-0123-05	2SC733(Y)		
D1～7	V11-0076-05	1S1555		
L1～6	L40-1021-03	FERRI INDUCTOR 102K		
T1	L30-0265-05	IFT 10.7MHz		
TC1, 2	C05-0013-15	20P		
TC3	C05-0015-15	40P		
X1	L77-0355-05	X'tal 10.6985MHz		※
X2	L77-0356-05	X'tal 10.7515MHz		※
—	E23-0047-04	TERMINAL		

MKR(X50-1280-00)

C1	CC45CH1H560J	56pF	±5%	
C2	CC45SL1H391J	390pF	±5%	
C3	CC45CH1H470J	47pF	±5%	
C4	CK45F1H103Z	0.01μF	+80%, −20%	
C5	CC45CH1H150J	15pF	±5%	
C6	CC45SL1H220J	22pF	±5%	
C7	CK04W1C330(RL)	33μF	16WV	
C8	CC45SL1H020D	2pF	±0.5pF	
C9 10	CK45F1H103Z	0.01μF	+80%, −20%	
C11	CC45SL1H050D	5pF	±0.5pF	
R1～9	PD14CY2E000J	000Ω	±5%	1/4W

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
Q1	V01-0032-05	2SA562(Y)	
Q2	V03-0093-05	2SC458(B)	
Q3	V01-0037-05	2SA495(Y)	
Q4, 5	V30-0151-05	TD3490BP	✱
D1, 2	V11-0076-05	1S1555	
D3	V11-0418-05	BZ-052	✱
X1	L77-0482-05	10MHz HC-18/U	✱
T1	L30-0264-05	I F T 10.7MHz	
TC1	C05-0015-15	Ceramic trimmer	
	E23-0047-04	Terminal 6	✱

HET(X50-1360-00)

C1~5	CK45B1H102K	0.001μF ±10%	
C6	CC45PH1H050D	5pF ±0.5pF	
C7	CK45B1H102K	0.001μF ±10%	
C8	CC45PH1H050D	5pF ±0.5pF	
C9	CK45F1H103Z	0.01μF +80%, −20%	
C10	CC45TH1H470J	47pF ± 5%	
C11	CK45B1H102K	0.001μF ±10%	
C12	CC45SL1H100D	10pF ±0.5pF	
C13~15	CK45B1H102K	0.001μF ±10%	
C16~20	CC45SL1H330J	33pF ± 5%	
C21	CK45B1H102K	0.001μF ±10%	
C22	CC45SL1H221J	220pF ± 5%	
C23	CK45B1H102K	0.001μF ±10%	
C24	CC45SL1H221J	220pF ± 5%	
C25	CK45F1H103Z	0.01μF +80%, −20%	
C26	CC45SL1H560J	56pF ± 5%	
C27	CC45SL1H390J	39pF ± 5%	
C28	CK45F1H103Z	0.01μF +80%, −20%	
C29	CK45B1H102K	0.001μF ±10%	
C30	CC45SL1H100D	22pF ± 5%	
C31	CK45B1H102K	0.001μF ±10%	
C32	CC45SL1H470J	47pF ± 5%	
C33	CC45SL1H820J	82pF ± 5%	
C34	CC45SL1H470J	47pF ± 5%	
C35, 36	CC45SL1H220J	22pF ± 5%	
C37	CC45SL1H390J	39pF ± 5%	
C38, 39	CK45B1H102K	0.001μF ±10%	
C40, 41	CK45F1H103K	0.01μF +80%, −20%	
C42	CC45SL1H330J	33pF ± 5%	
C43	CC45SL1H470J	47pF ± 5%	
C44~47	CK45F1H103Z	0.01μF +80%, −20%	
C48	CK45B1H102K	0.001μF ±10%	
C49	CC45SL1H470J	47pF ± 5%	
C50	CC45SL1H101J	100pF ± 5%	
C51	CC45SL1H020D	2pF ±0.5pF	
C52	CC45SL1H101J	100pF ± 5%	
C53	CQ92M1H223K	M 0.022μF ±10%	
C54	CK45F1H103Z	0.01μF +80%, −20%	
C55	CC45SL1H100D	10pF ±0.5pF	
C56	CC45SL1H560J	56pF ± 5%	
C57	CK45F1H103Z	0.01μF +80%, −20%	
C58, 59	CC45SL1H010D	1pF ±0.5pF	
C60	CK45B1H102K	0.001μF ±10%	
C61	CK45F1H103Z	0.01μF +80%, −20%	
C62	CK45F1H403Z	0.04μF +80%, −20%	
C63	CC45CH1H020D	2pF ±0.5pF	
C64	CC45SL1H220J	22pF ± 5%	
R1~57	PD14CY2E000Ω	000Ω ± 5% 1/4W	
Q1	V03-0053-05	2SC388(A)	
Q2~6	V03-0079-05	2SC460(B)	
Q7	V03-0123-05	2SC733(Y)	
Q8	V03-0241-05	2SC735(Y)	
Q9	V30-0153-05	I C SN76514N	
Q10	V09-0057-05	F E T 3SK41(L)	
D1~6	V11-0076-05	1S1555	
D7	V11-0273-05	1S2208	
D8~12	V11-0076-05	1S1555	
D13	V11-0051-05	1N60	
D14~16	V11-0447-05	1SV50	—
D17, 18	V11-0076-05	1S1555	
D19	V11-0051-05	1N60	
VR1	R12-2014-05	5kΩ(B)	
L1	L40-1091-03	Ferri-inductor 1μH	
L2~5	L40-2201-03	22μH	
L6, 7	L40-1091-03	1μH	
L8	L40-1021-03	1mH	
L9	L40-6891-02	6.8μH	
L10	L40-1021-03	1mH	
L11, 12	L40-4791-02	4.7μH	
L13	L40-6891-02	6.8μH	
L14	L40-1091-03	1μH	
L15	L33-0074-05	Choke coil	
T1~4	L34-0490-05		✱
T5	L34-0573-05		✱
T6~8	L34-0575-05		✱
TC1~6	C05-0013-15	20pF	
—	E02-1401-05	Ic Socket	
—	E18-0201-05	X'tal Socket	
—	E18-0601-05	X'tal Socket	✱
—	E23-0047-04	Terminal	
—	F10-0330-04	Shield Plate	
			✱

LPF(X51-1140-00)

C1, 2	CC45CH1H150J	15pF ± 5%	
C3	CC45CH1H100J	10pF ± 5%	
C4	CC45CH1H390J	39pF ± 5%	
C5~9	CC45CH1H820J	82pF ± 5%	
C10	CC45CH1H390J	39pF ± 5%	
C11	CK04W1HR46(RL)	E 0.47μF 50WV	

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
CK1	C90-0194-05	0.001μF	
D1	V11-0051-05	1N60	
L1	L40-1092-02	Ferri-inductor	
L2～7	L34-0576-05		※
–	E04-0109-15	M type receptacle ANT	
–	E23-0001-05		
–	F10-0421-04	Shield Cover	※
–	F11-0254-03	Shield Case	※

GEN(X52-1080-02)

Ref. No.	Parts No.		Description			Remarks
C1	CC45SL1H101J		100pF	±5%		
C2	CQ92M1H223K	M	0.0022μF	±10%		
C3	C90-0076-05	T	0.0μF	25V		
C4	CE04W1A470(RL)		4.7μF	10WV		
C5	CE04W1H010(RL)		1μF	50WV		
C6	CQ92M1H103K	M	0.01μF	±10%		
C7	CE04W1C100(RL)		10μF	16WV		
C8	CQ92M1H223K	M	0.022μF	±10%		
C9	CE04W1A470(RL)	E	47μF	10WV		
C10	CQ92M1H102K	M	0.001μF	±10%		
C11	CE04W1H010(RL)	E	1μF	50WV		
C12, 13	CE04W1C100(RL)	E	10μF	16WV		
C14	CQ92M1H223K	M	0.022μF	±10%		
C15	CE04W1A470(RL)	E	47μF	10WV		
C16	CK45F1H103Z		0.01μF	+80%, −20%		
C17, 18	CE94W1A470(RL)	E	47μF	10WV		
C19, 20	CE04W1H010(RL)	E	1μF	50WV		
C21	CQ92M1H103K	M	0.01μF	±10%		
C22	CQ92M1H473K	M	0.047μF	±10%		
C23	CE04W1H010(RL)	E	1μF	50WV		
C24	CC45UJ1H220J		22pF	±5%		
C25	CC45UJ1H050D		5pF	±0.5pF		
C26	CC45SL1H221J		220pF	±5%		
C27	CK45F1H103Z		0.01μF	+80%, −20%		
C28	CC45SL1H221J		220pF	±5%		
C29	CK45F1H103Z		0.01μF	+80%, −20%		
C31～36	CK45F1H103Z		0.01μF	+80%, −20%		
C37, 38	CE04W1H4R7(RL)	E	4.7μF	50WV		
C39	CK45D1H102M		0.001μF	±20%		
C40	C91-0013-05		103K50V			※
C41	CC45CH1H150J		15pF	±5%		
C42	CC45CH1H100D		10pF	±0.5pF		
C43～45	CK45D1H102M		0.001μF	±20%		
C46, 47	CK45F1H403Z		0.04μF	+80%, −20%		
C48	CC45SL1H020J		2pF	±0.25%		
C49	CC45CH1H390J		39pF	±5%		
C50, 51	CK45F1H403Z		0.04μF	+80%, −20%		
C52	CK45F1H103Z		0.01μF	+80%, −20%		
C53	CC45SL1H220J		22pF	±5%		
C54	CK45F1H103Z		0.01μF	+80%, −20%		
C55	CE04W1H010(RL)	E	1μF	50WV		
C56	CC45SL1H270J	E	27pF	±5%		
C57, 58	CK45D1H102M		0.001μF	±20%		
C59	CC45SL1H220J	E	22pF	±5%		
C62～64	CK45F1H103Z		0.01μF	+80%, −20%		
C65	CK45D1H102M		0.01μF	±20%		
C66	CK45F1H103Z		0.01μF	+80%, −20%		
C67	CE04W1E330(RL)	E	33μF	25WV		
C68	CK45F1H403Z		0.04μF	+80%, −20%		
C69	CE04W1H4R7(RL)	E	4.7μF	50WV		
C70, 71	CK45F1H103Z		0.01μF	+80%, −20%		
C72	CE04W1C100(RL)	E	10μF	16WV		
C73	CC45SL1H270J		27pF	±5%		
C74	CC45SL1H101J		100pF	±5%		
C76	CQ92M1H104K	M	0.1μF	±10%		
C77	C91-0013-05		103K 50V			※
C79	CQ92M1H473K	M	0.047μF	±10%		
C80	CK45F1H403Z		0.04μF	+80%, −20%		
C81	CC45SL1H470J		47pF	±5%		
C82	CK45F1H403Z		0.04μF	+80%, −20%		
C83	C91-0013-05		103K 50V			※
C84	CC45SL1H070D		7pF	±0.5pF		
C85, 86	CK45F1H403Z		0.04μF	+80%, −20%		
C87	CE04W1C101(RL)	E	100μF	16WV		
C88, 89	CC45SL1H100D		10pF	±0.5pF		
C91	CK45D1H102M		0.001μF	±20%		
C92	CK45F1H403Z		0.4μF	+80%, −20%		
C94	CK45D1H102M		0.001μF	±20%		
C96	CE04W1H4R7(RL)	E	4.7μF	50WV		
C97	CE04W1H010(RL)	E	1μF	50WV		
C98	CK45F1H303Z		0.04μF	+80%, −20%		
C99	CC45SL1H470J		47pF	±5%		
C100	CC45SL1H221J		220pF	±5%		
C101	CE04W1H3R3(RL)	E	3.3μF	50WV		
C102	CK45F1H403Z		0.04μF	+80%, −20%		
C103	CE04W1H010(BR)	E	1μF	50WV		
C104	CK45F1H103Z		0.01μF	+80%, −20%		
C105	CE04W1H010(RL)	E	1μF	50WV		
C106	C91-0013-05		103K 50V			※
C107	CC45F1H403Z		0.04μF	+80%, −20%		
C108	CK45F1H223Z		0.022μF	+80%, −20%		
C109	CC45SL1H150J		15pF	±5%		
C110	CC45UJ1H220J		22pF	±5%		
C111	CC45CH1H050D		5pF	±0.5pF		
R1～87	PD14CY2EOOOJ or		OOOΩ	±5%	¼W	
R83	PC05GF2HOOOJ		OOOΩ	±5%	½W	
R88, 89	PD14BY2EOOOJ		OOOΩ	±5%	¼W	
Q1, 2	V03-0299-05		2SC1000(GR)			
Q3	V03-0123-05		2SC733(Y)			
Q4	V30-0039-05		TA7061AP			
Q5	V03-0079-05		2SC460(B)			
Q6	V09-0057-05		3SK41(LまたはM)			
Q7, 8	V03-0079-05		2SC460(B)			
Q9	V09-0057-05		3SK41(LまたはM)			
Q11	V09-0036-05		3SK35(GRまたはBL)			
Q12, 13	V09-0036-05		3SK35(GR)			
Q15, 16	V03-0123-05		2SC733(Y)			

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
D1, 2	V11-0076-05	1S1555	
D3~6	V11-0051-05	1N60	
D7	V11-0076-05	1S1555	
D8~14	V11-0370-05	1S1587	
D15	V11-0273-05	1S2208	
D16~23	V11-0076-05	1S1555	
D24, 25	V11-0051-05	1N60	
D26	V11-0076-05	1S1555	
D27~30	V11-0051-05	1N60	
D32	V11-0219-05	V06C	
VR1	R12-3025-05	10kΩ (B)	
VR3	R12-2015-05	5kΩ (B)	
VR4	R12-1016-05	3kΩ (B)	
VR5	R12-3025-05	10kΩ (B)	
VR6	R12-0054-05	100Ω (B)	
VR7	R12-1020-05	1kΩ (B)	
L1	L40-1045-06	Ferri-inductor 100mH	
L2	L33-0264-05	Choke coil 30μH	*
L3	L39-0069-05	VR-inductor LV1-100 15μH	
L4	L33-0236-05	choke coil 10μH	*
L5, 6	L40-1021-03	Ferri-inductor 1mH	
L7	L40-1001-03	do 10μH	
L8	L40-1021-03	do 1mH	
L9	L40-1011-03	do 100μH	
L10	L40-6801-03	do 68μH	
L11	L40-1021-03	do 1mH	
L12	L40-1011-03	do 100μH	
L13~18	L40-1021-03	do 1mH	
L19	L40-1091-03	Ferri-inductor 1μH	
L20	L40-1021-03	do 1mH	
T1~6	L30-0264-05	10.7MHz	
TC1, 2	C05-0030-15	20P	
—	L71-0022-05	Crystal filter フィルタ 10.7MHz	
X1	L77-0710-05	Crystal osc 10.715MHz	
—	E23-0047-04	Terminal	
—	F10-0330-04	Shield Plate	
—	F10-0334-04	do	
—			*

Ref. No.	Parts No.	Description	Remarks
C1	CC45SL1H100D	C 10pF ±0.5pF	
C2	CC45SL1H101J	C 100pF ±5%	
C3	CC45SL1H030D	C 3pF ±0.5pF	
C4	CC45SL1H100D	C 10pF ±0.5pF	
C5	CK45F1H103Z	C 0.01μF +80%, −20%	
C6	CK45F1H403Z	C 0.04μF +80%, −20%	
C7	C90-0013-05	C 0.01μF +80%, −20%	
C8	CK45F1H403Z	C 0.04μF +80%, −20%	
C9	CK45D1H102M	C 0.002μF ±20%	
C10	CK45F1H403Z	C 0.04μF +80%	
C11	CK45D1H102M	C 0.001μF ±20%	
C12	CC45SL1H100D	C 10pF ±0.5pF	
C13	CC45SL1H010D	C 1pF ±0.5pF	
C14	CC45SL1H330J	C 33pF ±5%	
C15~17	CK45D1H102M	C 0.001μF ±20%	
C18	CC45SL1H101J	C 100pF ±5%	
C19	CK45F1H403Z	C 0.04μF +80%, −20%	
C20	CK45F1H103Z	C 0.01μF +80%, −20%	
C21	CC45SL1H101J	C 100pF ±5%	
C22	CC45SL1H070D	C 7pF ±0.5pF	
C23~26	CK45F1H403Z	C 0.04μF +80%, −20%	
C27, 28	CK45F1H103Z	C 0.01μF +80%, −20%	
C29	CK45F1H403Z	C 0.04μF +80%, −20%	
C30	CE04W1C100(RL)	C 10μF 50WV	
C31	CC45SL1H030D	C 3pF ±0.5pF	
C32~34	CK45F1H103Z	C 0.01μF +80%, −20%	
C35	CK45F1H403Z	C 0.04μF +80%, −20%	
C36	CK45F1H103Z	C 0.01μF +80%, −20%	
C37	CC45SL1H470J	C 47pF ±5%	
C38	CK45D1H102M	C 0.001μF ±20%	
C39	C90-0013-05	C 0.01μF +80%, −20%	
C40	CK45F1H103Z	C 0.01μF +80%, −20%	
C41	CC45SL1H100D	C 10pF ±0.5pF	
C42, 43	CK45F1H103Z	C 0.01μF +80%, −20%	
C44	CC45SL1H050D	C 5pF ±0.5pF	
C45	CK45F1H223Z	C 0.022μF +80%, −20%	
C46	CK45F1H103Z	C 0.01μF +80%, −20%	
C47	CK45D1H102M	C 0.001μF ±20%	
C48	CC45SL1H331J	C 330pF +80%, −20%	
C49	CK45F1H103Z	C 0.01μF +80%, −20%	
C50	CK45F1H103Z	C 0.01μF +80%, −20%	
C51	CC45SL1H101J	C 100pF ±5%	

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
C52	CC45SL1H050D	C 5pF ±0.5pF	
C53	CK45D1H102M	C 0.001μF ±20%	
C54	CC45SL1H070D	C 7pF ±0.5pF	
C55	CC45SL1H050D	C 5pF ±0.5p F	
C56	CQ92M1G332K	Mylar 3300pF ±10%	
C57	CK45F1H403Z	C 0.04μF +80%, −20%	
C58	CK45F1H103Z	C 0.01μF +80%, −20%	
R1~47	PD14CY2EOOOJ	OOOΩ ±5% ¼W	
Q1	V09-0113-05	3SK45(B)	
Q2	V09-0069-05	3SK41(M) or 3SK40(M)	
Q3	V09-0113-05	3SK45(B)	
Q4	V09-0012-05	2SK19(GR)	
Q5	V01-0037-05	2SA495(O) or (Y)	
Q6	V09-0012-05	2SK19(GR)	
Q7	V30-0006-00	TA7045M(R)	
Q8	V03-0079-05	2SC460(B)	
Q9, 10	V03-0123-05	2SC733(Y)	
D1	V11-0447-05	1SV50	
D2	V11-0051-05	1N60	
D3, 4	V11-0447-05	1SV50	
D5	V11-0374-05	1SS16	
D6, 7	V11-0051-05	1N60	
D8	V11-0076-05	1S1555	
D9, 10	V11-0051-05	1N60	
VR1	R12-3025-05	10kΩ(B)	
VR2	R12-7013-05	500kΩ(B)	
VR3	R12-3025-05	10kΩ(B)	
VR4	R12-0042-05	500Ω(B)	
L1	L40-1021-03	Ferri-inductor 102K	
L2	L33-0220-05	Choke coil	
L3~6	L40-1021-03	Ferri-inductor 102K	
T1~3	L34-0578-05	COIL 50MHz	※
T4, 5	L30-0265-05	I F T 10.7MHz	
T6~8	L30-0264-05	I F T 10.7MHz	
T9~11	L30-0265-05	I F T 10.7MHz	
T12	L71-0021-05	Monolitic filter 10F20AG	
—	E23-0047-04	Terminal×24	
—	F11-0113-04	Shield Case	
			※

FINAL (X56-1220-00)

C1	CC45SL1H101J	C 100pF ±5%	
C2	CQ92M1H223K	Mylar 0.022μF ±10%	
C3	C90-0076-05	Tantalum 0.1μF 25WV	
C4	CE04W1A470(RL)	Electrolytic 47μF 10WV	
C5	CE04W1H010(RL)	Electrolytic 1μF 50WV	
C6	CQ92M1H103K	Mylar 0.03μF ±10%	
C7	CE04W1C100(RL)	C 10μF 16WV	
C8	CQ92M1H223K	Mylar 0.022μF ±10%	
C9	CE04W1A470(RL)	Electrolytic 47μF 10WV	
C10	CQ92M1H102K	Mylar 0.001μF ±10%	

Ref. No.	Parts No.	Description	Remarks
C11	CE04W1H010(RL)	E 1μF 50WV	
C12, 13	CE04W1C100(RL)	E 10μF 16WV	
C14	CQ92M1H223K	M 0.022μF ±10%	
C15	CE04W1A470(RL)	E 22μF 16WV	
C16	CC45CH1H680J	C 68pF ±5%	
C17	CC45CH1H820J	C 82pF ±5%	
C18	CC45CH1H680J	C 68pF ±5%	
C19	CK45F1H103Z	C 0.01μF +80%, −20%	
C20	CE04W1H100(RL)	C 10μF 50WV	
C21~25	CK45F1H1103Z	E 0.01μF +80%, −20%	
C26	CC45CH1H560J	C 56pF ±5%	
R1~6	PD14CY2EOOOJ or	OOOΩ ±5% ¼W	
R4, 5	PC05GF2HOOOJ	OOOΩ ±5% ½W	
Q1	V03-0474-05	2SC1909	※
Q2, 3	V03-0475-05	2SC1307	※
D1, 2	V21-0015-05	VD1220	※
D3	V11-0294-05	V06J	
L1	L40-0001-03	10μH	
L2	L33-0220-05	Choke coil 2.36μH	
L3	L33-0222-05	do 0.236μH	
L4, 5	L33-0220-05	do 2.36μH	
L6, 7	L34-0354-05	Ferri-inductor	※
T1, 2	L34-0582-05	(A)	※
T3	L34-0583-05	(B)	※
T4	L34-0581-05		※
T5	L34-0583-05	(B)	※
TC1~5	C05-0054-05	60P	
RL1	S51-1401-05	Relay	※
—	E13-0161-05	1P phone jack	
—	E23-0047-04	Terminal (square)	
—	F01-0172-24	Heat sink	
—	F01-0257-03	Heat sink	※
—			※
—	J32-0701-04	Hex·boss×4	
—	J32-0702-04	do ×3	
—	L92-0101-05	core ×4	※

DISASSEMBLY

1. Separating the upper and lower cases

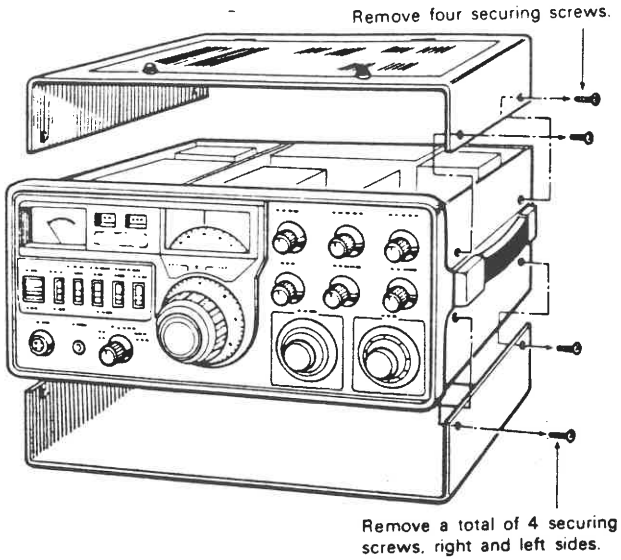


Fig. 1

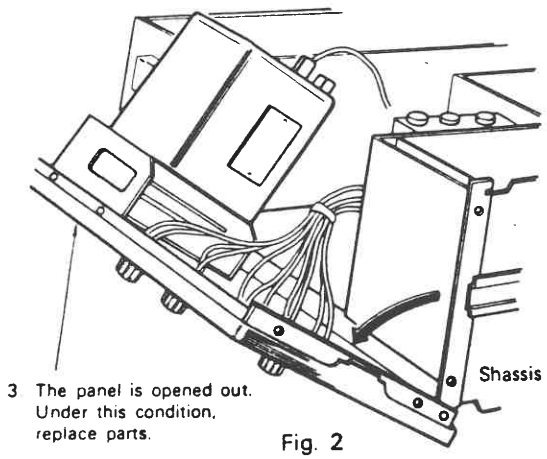


Fig. 2

2. VFO removal

Procedure

1. Remove the double knob on the panel. At the same time, remove the dial scale, the spring and the knob flange.
2. Remove the 4 screws securing the VFO mounting fixtures on top and bottom of the panel escutcheons.
3. Remove the lamp holder. (The holder may be removed first.)

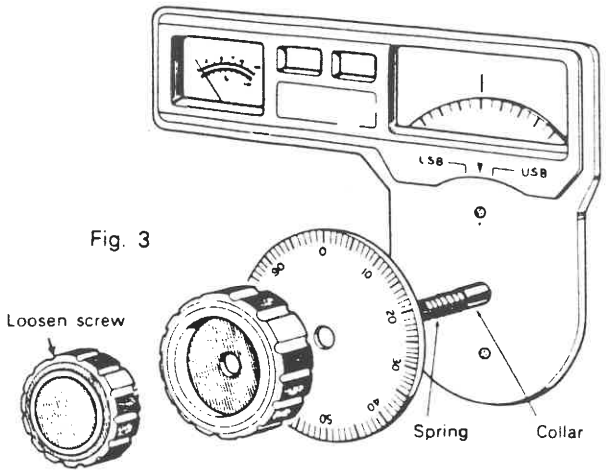


Fig. 3

3. Dial escutcheon replacement

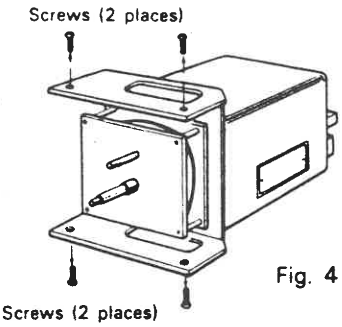


Fig. 4

Remove the double knob and the knob flange on the VFO gear.

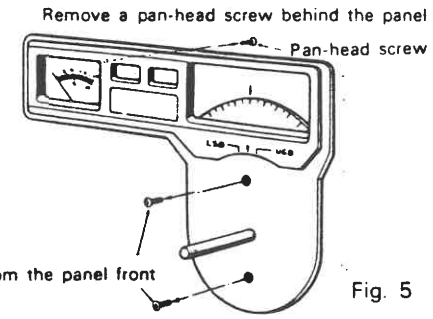


Fig. 5

4. Replacement of Power Switch and Lever Switch

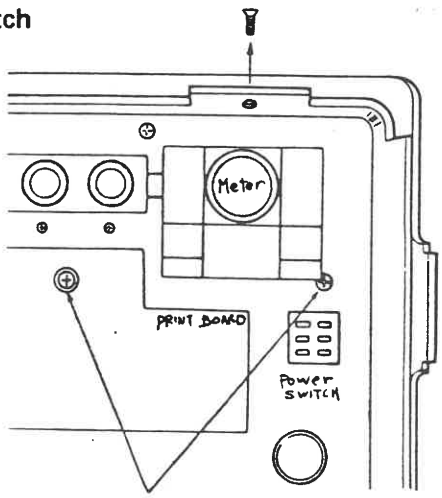


Fig. 6

DISASSEMBLY

5. Replacement of Power Switch

After removing the switch grille, push the switch out to the front by holding down its mounting fingers.

Lever switch replacement

After removing the switch grille, remove 4 screws securing the switch to the panel.

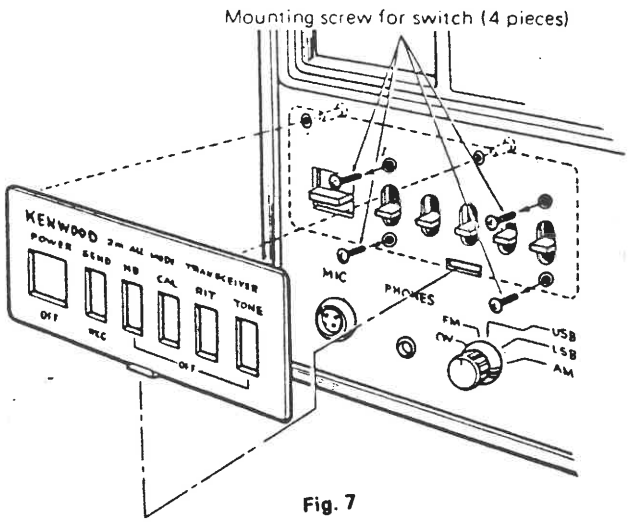


Fig. 7

6. Removing the Power Unit

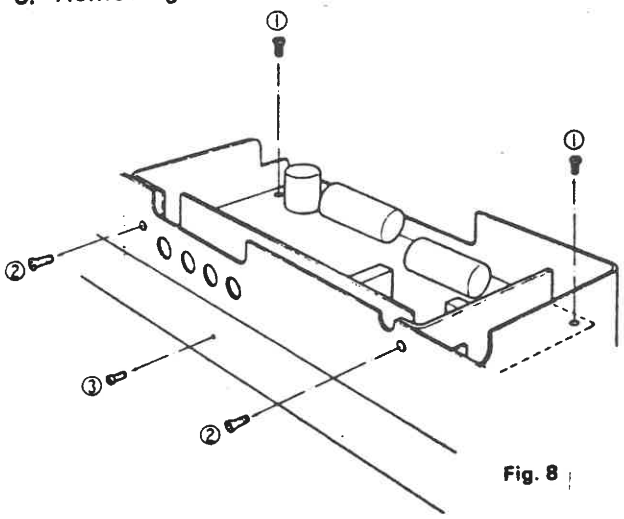


Fig. 8

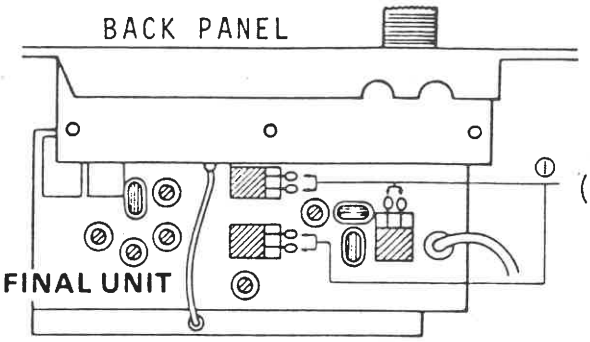


Fig. 9

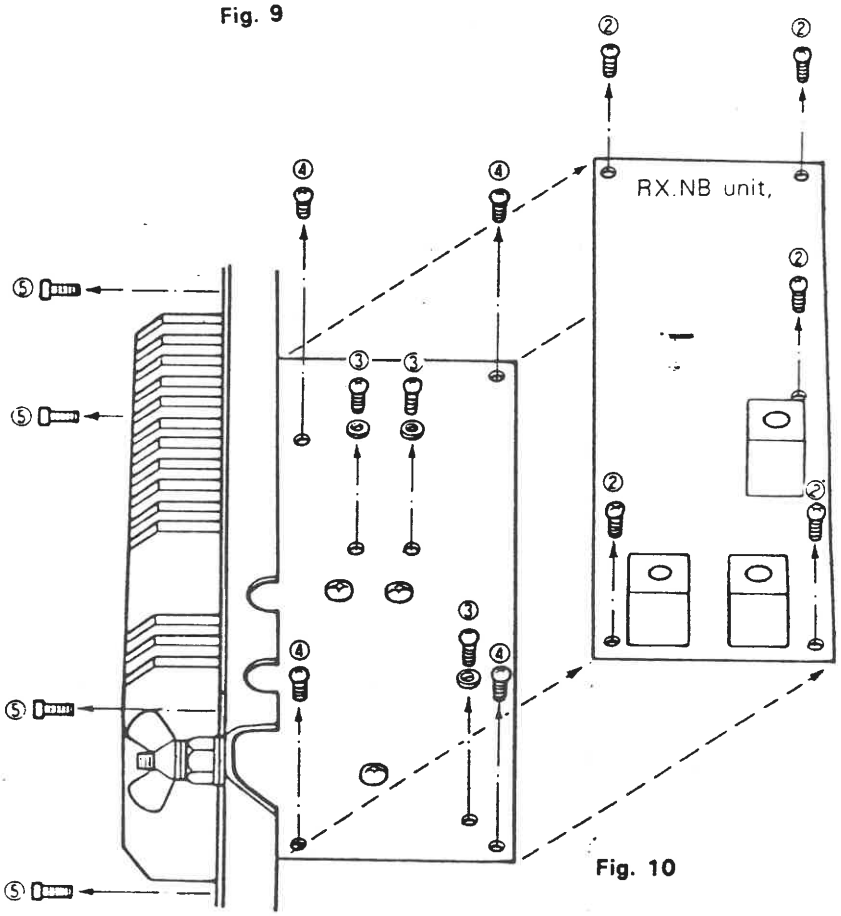


Fig. 10

7. Replacement of Final Transistor

1) Unsolder 6 wires on TR.-------Fig 9
2) Remove 5 screws on RX-NB.--Fig 10, ②
3) Remove 3 screws.-----------Fig 10, ③
4) Remove 4 screws.-----------Fig 10, ④
5) Remove 5 screws.-----------Fig 10, ⑤
6) Remove FINAL UNIT----------Fig 10
7) Unsolder 3 position and replace
-------Fig 11

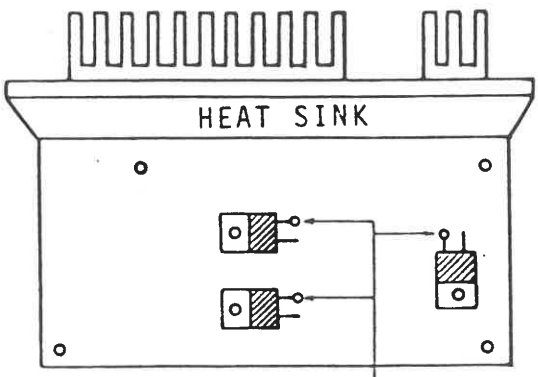
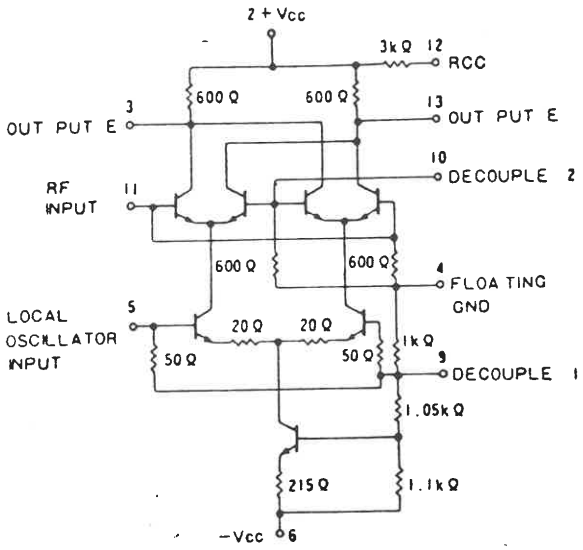
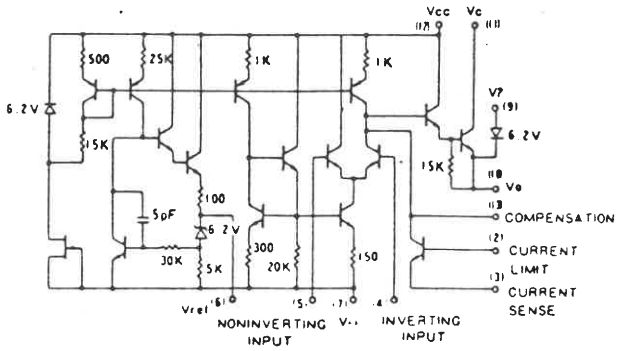


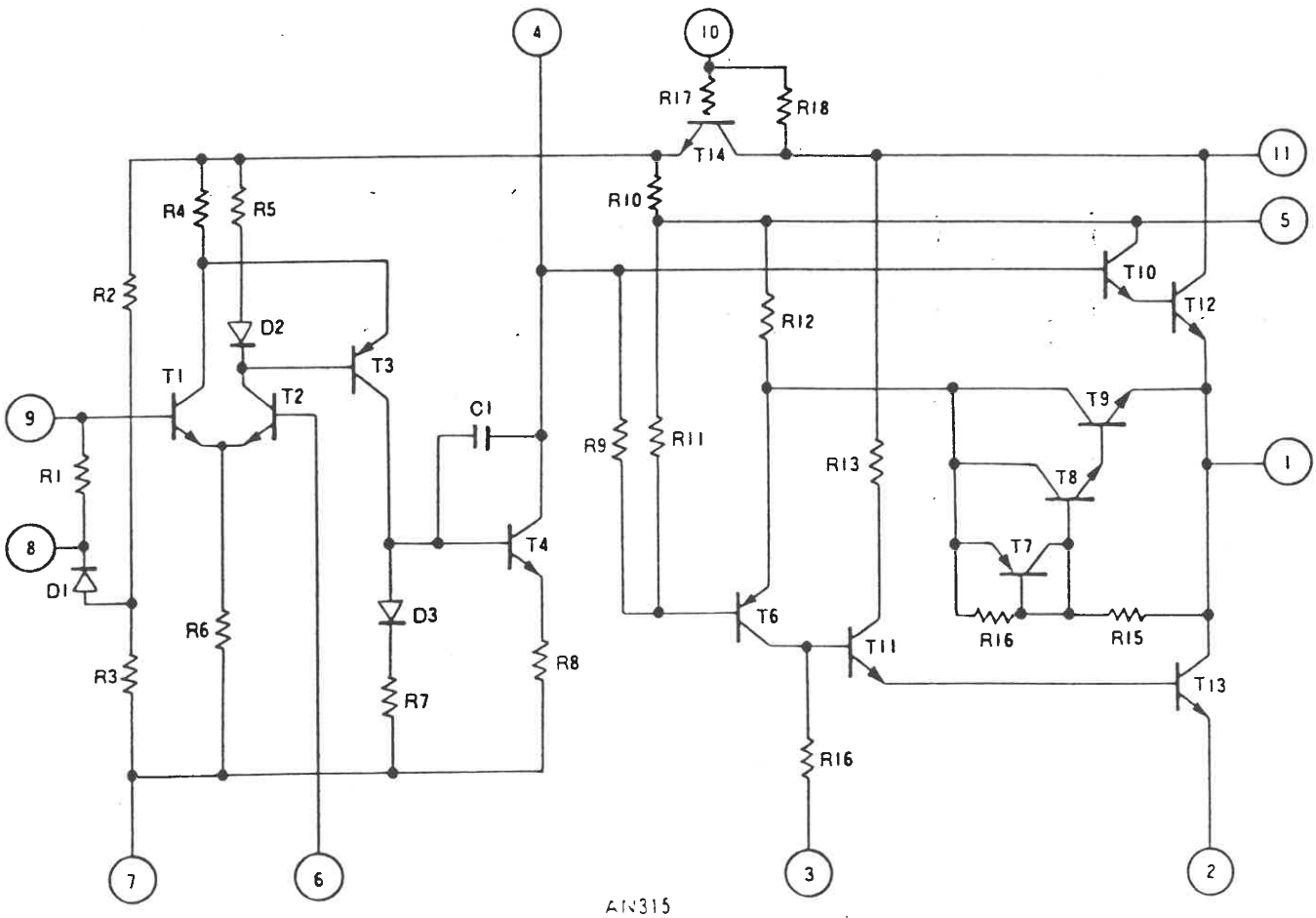
Fig. 11



SN76514N



MC1723 CL-A



AN315

Measuring instruments

(1) **Tester**
- Use a high input impedance tester.

(2) **RF VTVM**
- Input impedance: More than 1 MΩ, less than 20PF
- Voltage range: F.S = 10 mV – 300 V
- Measurable frequencies: Up to 100 MHz

(3) **Frequency counter**
- Input sensitivity: About 50 mV
- Measurable frequencies: Up to 80 MHz

(4) **DC power supply**
- Voltage: 10 V – 17 V, adjustable
- Current: More than 5 A

(5) **Power meter**
- Power measured: About 20 W
- Input impedance: 50 Ω
- Measurable frequencies: Up to 50 MHz

(6) **AF VTVM**
- Input impedance: More than 1 MΩ
- Voltage range: F.S = 1 mV – 30 V
- Measurable frequencies: 50 Hz – 10 kHz

(7) **AF generator (AG)**
- Output frequency: 100 Hz – 10 kHz
- Output voltage: 0.5 mV – 1 V

(8) **Linear detector**
- Measurable frequencies: 50 MHz

(9) **Field strength meter**
- Measurable frequencies: 50 MHz

(10) **Directional coupler**

(11) **Oscilloscope**
- Use a high sensitivity oscilloscope with horizontal input terminal.

(12) **SSG**
- SSG capable of producing 50 MHz band frequencies with amplitude and frequency modulations.
- Output level: -20dB to 100 dB

(13) **Dummy resistor**
- 8 ohms, 5 W

(14) **Noise generator**
- Noise generator capable of producing noise similar to ignition noise and containing high frequency component of more than 50 MHz.

NOTE TO TECHNICAL PERSONNEL

Before attempting alignment, be sure that proper test equipment is available. It is best before tuning factory sealed adjustments, to verify the gain of the circuit in question.

Preparation

(1) Unless otherwise noted, knobs and switches should be set as shown in **Table 3.**

POWER switch	ON
STBY switch	REC REC
NB switch	OFF
RIT switch	OFF
FIX. CH switch	VFO
RF POWER	Clockwise end
RF GAIN	Full clockwise
SQUELCH knob	Full counterclockwise
AF knob	Full counterclockwise

Table 3 Set Positions of Knobs

(2) For adjustment (trimmers, coils, etc.), use an insulated rod such as a bakelite rod.

(3) During adjustment of receiver section, do not set the STBY switch to SEND for protection of signal generator.

(4) When connecting power cord, make sure that the power switch in OFF position.

1. Power Supply Adjustment (x43-1230-00)

(1) Connect a voltmeter to the appropriate terminal.

9 V terminal ---------- Adjust VR-2 9.0 V
12 V terminal --------- Adjust VR-1 12.0 V

(2) Regulation Check. Connect to dummy load, transmit FM and check the power supply regulation at the following points.

12 V terminal ------- 12 V ± 0.5 V
-6 V terminal ------- -6 V ± 0.5 V
TBL terminal ------- -4 V ± 0.5 V

(3) BAND SWITCH to 51 MHZ position.

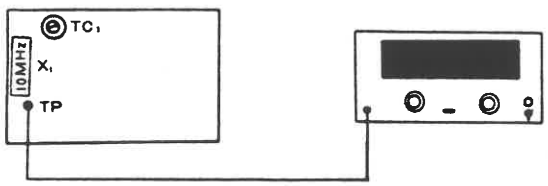
DRIVE control centered.

VCV terminal on HET UNIT ---------- 5.5 V + 0.5 V, -0.1V.

2. MARKER UNIT CALIBRATION (X50-1280-00)

CAL SWITCH -------- ON
RIT SWITCH -------- OFF

Connect a frequency counter to the TP terminal on the Marker unit, and adjust TC-1 to read 10000.00 KHZ on the counter.



3. CAR UNIT ADJUSTMENT

(1) Connect the TS-600 to a dummy load, place the FIX-CH switch to an empty position, (not VFO). Place the standby switch to SEND.

(2) Connect the RF VTVM to the TP as shown and adjust T-1 for maximum, about 1.0 V rms.

(3) Connect the frequency counter to the TP, and adjust trimmers for each mode as shown in the chart.

(4) Check to see that in the AM position the frequency changes form 10.70060 TX to 10.70150 in recieve.

MODE	STBY	ADJ	OUTPUT RF VOLTAGE OR FREQUENCY
LSB	REC	TC1	10.6985 MHz
USB	REC	TC2	10.7015 MHz
CW	SEND	TC3	10.7006 MHz

Carrier Oscillator Frequency

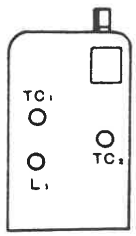
4. VFO Unit Frequency Adjustment (X40-1080-01)

(1) Connect frequency counter to Het Unit TP-2.

(2) Adjust the VFO dial one turn of the small tuning knob from fully clockwise. Adjust the dial and set screw so the pointer indicated "O" and the freq. counter should read 9,20000 MHZ.

(3) Verify tracking VFO per the chart.

Caribration	Adjustment parts	Frequency	Pointer
1000	L1	8.200 MHz	■ 1000
0	TC1	9.200 MHz	■ 0



5. Het Unit Adjustment (x50-1360-00)

(1) Position controls as follows.

BAND --------- 51
FIX CH ------- Empty position
VFO DIAL ----- 500

(2) Connect RF VTVM to TP-1

(3) When switching between the 50 and 51 MHZ band, output level difference should be within 1.5 db.

(4) Place the Fix ch. control to VFO.

(5) Connect the RF VTVM to TP-2. Level should be between 0.25 and 0.3 V.

(6) Connect the RF VTVM to the Het Unit terminal "60".

(7) Adjust T6, T7 and T8 for Maximum RF VTVM reading. (about 0.09 Vrms)

6. Fixed Channel Adjustment (X50-1360-00)

With the frequency counter connected to TP2, adjust each fixed channel trimmer to obtain the crystal frequency indicated.
Confirm that crystals perform in all channels and the fix ch. pilot lamp lights.
Crystal output level can be measured by connecting an RF VTVM to 60 terminal of Het Unit.
When switching between VFO and FIX ch. output level difference should be within ± 0.2 V.

Frequency	FM.AM.CW f_O (MHz)	f_{USB}	f_{LSB}
50/51/52/53.00	9.2000	9.1985	9.2015
.04	9.1600	9.1585	9.1615
.18	9.1200	9.1185	9.1215
.12	9.0800	9.0785	9.0815
.16	9.0400	9.0385	9.0415
.20	9.0000	8.9985	9.0015
.24	8.9600	8.9585	8.9615
.28	8.9200	8.9185	8.9215
.32	8.8800	8.8785	8.8815
.36	8.8400	8.8385	8.8415
.40	8.8000	8.7985	8.8015
.42	8.7800	8.7785	8.7815
.44	8.7600	8.7585	8.7615
.46	8.7400	8.7385	8.7415
.48	8.7200	8.7185	8.7215
.50	8.7000	8.6985	8.7015
.52	8.6800	8.6785	8.6815
.56	8.6400	8.6385	8.6415
.60	8.6000	8.5985	8.6015
.64	8.5600	8.5585	8.5615
.68	8.5200	8.5185	8.5215
.72	8.4800	8.4785	8.4815
.76	8.4400	8.4385	8.4415
.80	8.4000	8.3985	8.4015
.84	8.3600	8.3585	8.3615
.88	8.3200	8.3185	8.3215
.92	8.2800	8.2985	8.2815
.96	8.2400	8.2385	8.2415
51/52/53/54.00	8.2000	8.1985	8.2015

7. HET OSC Frequency Adjustment

(1) Position Knobs as Follows.

VFO DIAL ---------- 500
DRIVE CONTROL ----- CENTERED
RIT CONTROL ------- CENTERED
RIT SWITCH -------- ON
BAND SWITCH ------- 50

(2) Connect frequency counter to TP-1.

(3) T5---------- Full clockwise.

(4) Adjust frequency as follows.

BAND	adjustment	frequency (MHz)
50	L1	69.9000
51	L2	70.9000
52	L3	71.9000
53	L4	72.9000

8. RIT Adjustment

(1) Position knobs as follows.

RIT SWITCH ------- OFF
BAND SWITCH------- 51

(2) Connect Frequency Counter to TP-1 (Het Unit) and adjust VR-1 for 70.900 MHZ.

(3) Maximum RIT frequency shift should be greater than ± 2 KHZ.

9. Adjustment of FM Carrier

(1) Position knobs as follows.

MODE SWITCH --------- FM
FIX CHANNEL --------- Empty Position
STAND BY ---------- SEND

(2) Connect Frequency Counter to GEN terminal on GEN UNIT (X52-1080-02)

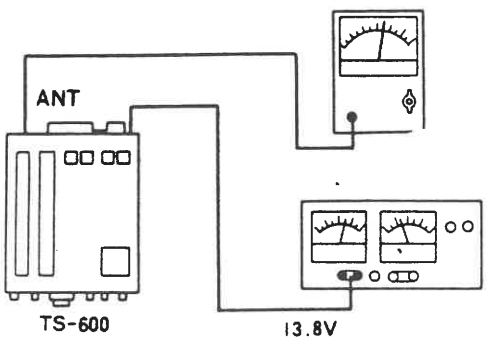
(3) Adjust L3 for 10.700 MHZ reading on the frequency counter.

10. GEM UNIT Adjustment (X52-1080-02)

(1) Position knobs as follows.

VFO DIAL POSITION --------- 500 KHZ
DRIVE CONTROL ---------- CENTERED
FIX CH. ---------- Empty Position
MODE SWITCH ---------- FM
BAND SWITCH ---------- 51
STAND BY ---------- SEND

(2) Connect Power meter and DC power supply as follows.



Power meter

DC power supply

(3) Connect the RF-VTVM to the GEN Terminal on GEN UNIT and adjust T-3 for maximum. (More than 0.1 Vrms).

(4) Place the MODE SWITCH to the CW position.

(5) Adjust T-1 and T-2 for maximun readion on the RF-VTVM. Adjust to the same level as in step number 3 by VR-5.

11. MIX UNIT Adjustment (X48-1180-00)

This adjustment must be performed after GEN UNIT adjustment.

(1) FIX·CH SWITCH to VFO position.

(2) Adjust VR-1 on the MIX UNIT fully clockwise. (ALC off)

(3) Adjust T-6, T-7 and T-8 on the HET UNIT and T-1, T-2, T-3 and T-4 on the MIX UNIT for maximum reading on the RF-VTVM. (Repeat the procedure two or three times.)

(4) Confirm that peak level position is at the center range of the DRIVE control.

12. VCV Adjustment.

(1) Place the BAND SWITCH to 50 MHZ.

(2) Adjust VR-10 for maximum on the power meter.

(3) Place the BAND SWITCH to 52, then 53 MHZ.

(4) Adjust VR-11, then VR-12 (same as VR-10).

(5) Confirm peak level position is at the center range of the DRIVE control.

13. FINAL UNIT Adjustment.

(1) Position controls as follows.

BAND SWITCH--------52
VFO DIAL-----------500
DRIVE CONTROL------RX Meter maximum position
MODE SWITCH--------CW
STAND BY SWITCH----SEND

(2) ALC off, Same as ajustment 11 (2).

(3) Adjust TC-1, TC-5 for maximum power meter reading.

(4) Confirm that power is more than 12W for each band.

14. DRIVE Readjustment

(1) RF POWER control centered.

(2) Adjust T-6, T-8 on the HET UNIT ofr maximum reading on RF meter.

(3) Adjust T-1, T-4 on the MIX UNIT for maximum RF meter reading.

(4) Confirm RF output peaks at Drive control center position.

15. ALC Adjustment

(1) Position controls as follows:

BAND SWITCH ---------- 52
VFO DIAL ------------- 500
DRIVE CONTROL -------- Centered

(2) Adjust VR-1 on the MIX UNIT (ALC adjustment) for 12W output power.

(3) Set the RF POWER control to the 9 o'clock position and adjust VR-2 for 1W output power.

16. Confirm AM output power (Must be performed after step 15).

(1) Set the MODE SWITCH to the AM position, and set the RF POWER control fully clockwise.

(2) Confirm power is more than 10 W when the AM CAR control is fully clockwise.

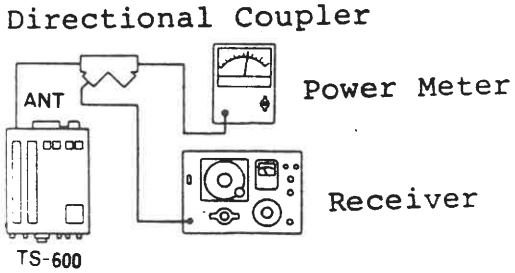
17. A. CARRIER SUPPRESSION Adjustment

(1) Position controls as follows:

MODE SWITCH ---------- USB
BAND SWITCH ---------- 51
FIX · CH SWITCH ------- VFO
VFO DIAL ------------- 500
DRIVE CONTROL --------- Centered (MAC POWER)
SSB MIC GAIN CONTROL -- Fully clockwise

(2) Connect as follow:

(3) Connect Audio Generator (AG) to the MIC terminal and set for 2 mV / 1500Hz.



(4) Tune an external receiver for maximum S-meter reading. (Receiver must have more than 40 db difference between maximum and minimum "S" meter readings).

(5) Set the SSB MIC GAIN control fully clockwise and adjust TC-1 and VR-6 on the GEN UNIT for minimum reading on the receiver, "S" meter.

(6) Set the MODE SWITCH to the LSB position.

(7) Confirm carrier suppression level for LSB.

17. B. Simple Carrier Suppression Adjustment

(1) Position controls as in 17-A.

(2) Take off the RF POWER METER and connect the RF-VTVM to the ANT TERMINAL.

(3) Set the SSB MIC GAIN control fullu clockwise. Adjust TC-1 and VR-6 on the GEN UNIT for RF-VTVM minimum reading.

(4) Set the MODE SWITCH to LSB and confirm LSB Carrier Suppression.

18. SSB MIC GAIN Adjustment (must be performed after step 17).

Connect the AG (2mV / 1500Hz) to the MIC terminal and adjust the SSB MIC GAIN control for 8W, RF output power.

19. AM MODULATION Adjustment

(1) Position controls as follows:

MODE SWITCH ---------- AM
FIX · CH SWITCH -------- Empty Channel
FM MIC GAIN CONTROL ---- Fully Clockwise

(2) Connect the AG at the MIC terminal.

(3) Connect the AF-VTVM to the AMM terminal on the GEN UNIT.

(4) Adjust VR-1 for 250 mV on the AF-VTVM.

20. A. FM MODULATION Adjustment

(1) Position controls as follows:

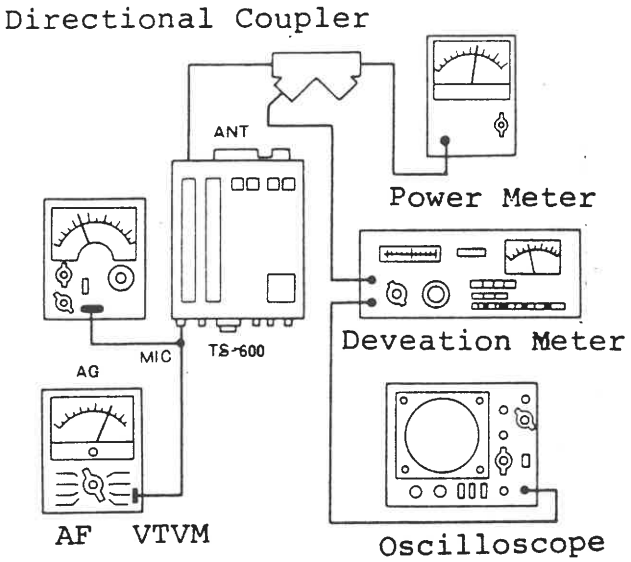
MODE SWITCH ---------- FM
BAND SWITCH ---------- 51
VFO DIAL ------------- 500
FM MIC GAIN ---------- Centered

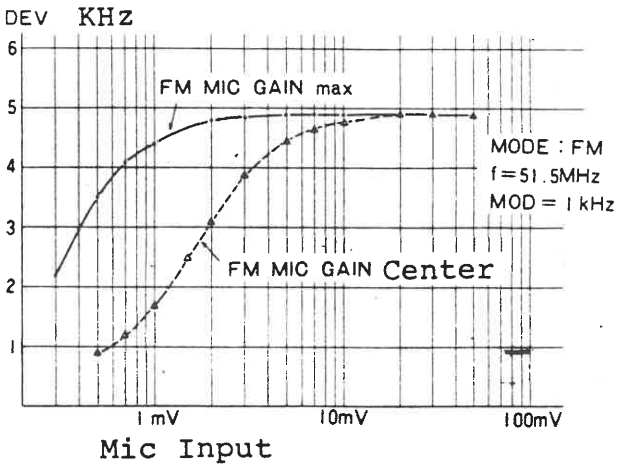
(2) Connect as shown.

(3) Connect the AG at the MIC terminal.

(4) Adjust VR-3 (MAX DEV Adjustment) for ± 5KHz deviation on the Deviation Meter.

(5) Reduce AG output to 2mV and adjust the FM MIC GAIN CONTROL for ± 3 KHz deviation on the Deviation Meter.

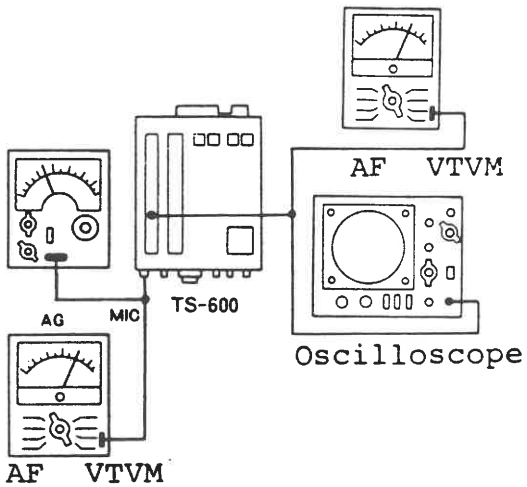




20. B. Simple FM MODULATION Adjustment

(1) Position controls as for 20-A.

(2) Connect as follows:



(3) Connect the AG (20mV / 1000Hz output) to the MIC terminal.

(4) Adjust VR-3 (MAX DEV Adjustment) on the GEN UNIT for 0.5 V on the AF-VTVM.

(5) Reduce AG output to 2mV and adjust the FM MIC GAIN CONTROL for 0.25V reading on the AF-VTVM.

21. RF METER Adjustment.

(1) Position controls as follows:

MODE SWITCH ---------- FM
BAND SWITCH ---------- 51
VFO DIAL ---------- 500

(2) Adjust VR-3 the RF METER Adjustment on the RX·NB UNIT for "8" on the RF METER.

Receiver Section

22. SSB SENSITIBITY Adjustment (GEN UNIT Adjustment).

(1) Position Controls as follows:

METER SWITCH ---------- S
BAND SWITCH ---------- 51
DIAL CONTROL ---------- 500
DRIVE CONTROL ---------- Centered
MODE SWITCH ---------- USB

(2) Adjust T-4 thru T-6 on the GEN UNIT for Maximum S-METER reading.

23. S-METER START Adjustment.

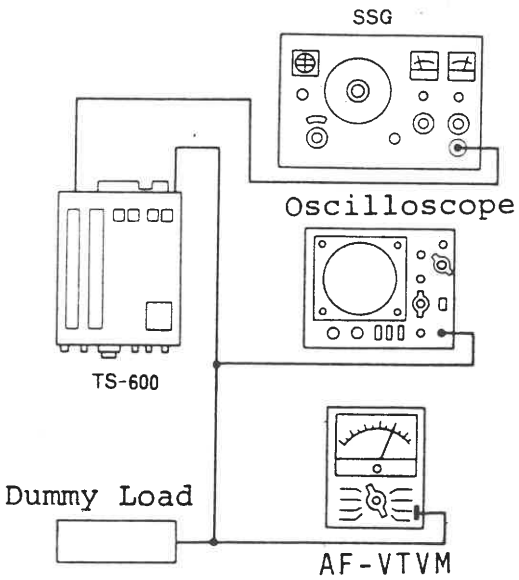
(1) Position controls as follows:

METER SWITCH ---------- S
BAND SWITCH ---------- 51
DIAL CONTROL ---------- 500
DRIVE CONTROL ---------- Centered
MODE SWITCH ---------- USB

(2) Confirm that the S-METER pins high when the RF GAIN CONTROL is fully clockwise, and fully down scale when the control is fully clockwise.

(3) After confirming RF GAIN CONTROL operation keep the control fully clockwise.

(4) With antenna input shorted or open, adjust VR-4 on the RX·NB unit for "S" meter zero. Set to just below the point where Deflection begins.



24. RX·NB UNIT Adjustment (Must be performed after step 23).

(1) Connect the SSG to the TS-600 and tune the signal. (At 51.5 MHZ / 5 mV signal).

(2) Reduce the SSG output level to 2.5 mV for an "S" Meter reading.

(3) Adjust T-1 thru T-3 for maximum S-METER reading.

(4) Confirm that S-meter peak occurs at center position of the Drive Control.

(5) Adjust T-4 thru T-8 for maximum S-Meter reading.

25. VCV ADJUSTMENT

(1) Position controls as follows:

BAND SWITCH ---------- 50
DRIVE CONTROL --------- Centered

(2) Receive 50.5 MHZ form the SSG

(3) Adjust VR-13 on the rotary switch board for maximum S-Meter reading.

(4) Reset the band switch to 52 MHZ (Receiving 52.5 MHZ). Adjust VR-14 for maximum S-Meter reading.

(5) Reset the band switch to 53 MHZ (Receiving 53.5 MHZ). Adjust VR-15 for maximum S-Meter reading.

26. Noise Blanker Adjustment

(1) Position controls as follows:

BAND SWITCH ---------- 51
NB SWITCH ---------- ON

(2) Connect a DC-Voltage meter (10 V scale) to TP-2 on the RX-NB UNIT.

(3) Receive a signal at 51.5 MHZ from the SSG (about 5mV output).

(4) Asjust T-9 thur 11 for minimum DC voltmeter reading.

(5) Connect a noise generator to the ANT terminal and confirm NB circuit operation.

27. Discriminator Adjustment

(1) Place the MODE SWITCH to FM.

(2) Receive a signal from the SSG (0.5 mV, MOD=1 KHz, DEV=± 5 KHz).

(3) Adjust T-5 and T-6 for maximum reading on the AF-VTVM.

28. S-Meter Adjustment

(1) SSG output = 0.5mV and no modulation tune to the SSG for peak S-Meter reading.

(2) Adjust VR-4 on the GEN UNIT for an S-Meter reading of S-1.

(3) Raise the SSG ouput to 50mV.

(4) Adjust VR-2 on the GEN UNIT for an S-9 S-Meter reading.

(5) Repeat steps 1 through 4, two or three times.

29. Center Meter Adjustment

(1) Position controls as follows:

MODE SWITCH ---------- FM
METER SWITCH ---------- CEN

(2) Ground the SMC terminal on the RX-NB UNIT.

(3) Adjust VR-1 on the RX·NB UNIT for an S-5 reading.

(4) Remove the ground jumper form the SMC terminal and ground the Antenna terminal.

(5) Adjust T-6 on the IF UNIT for "5" scale reading on the center meter.

(6) Set SSG output for 5mV.

(7) Adjust the main tuning for "5" on center meter. Scale when tuning to the SSG.

(8) Readjust the main tuning for maximum + swing on the center meter. Adjust VR-1 on the IF UNIT for an "8" ± 1 reading on the center meter.

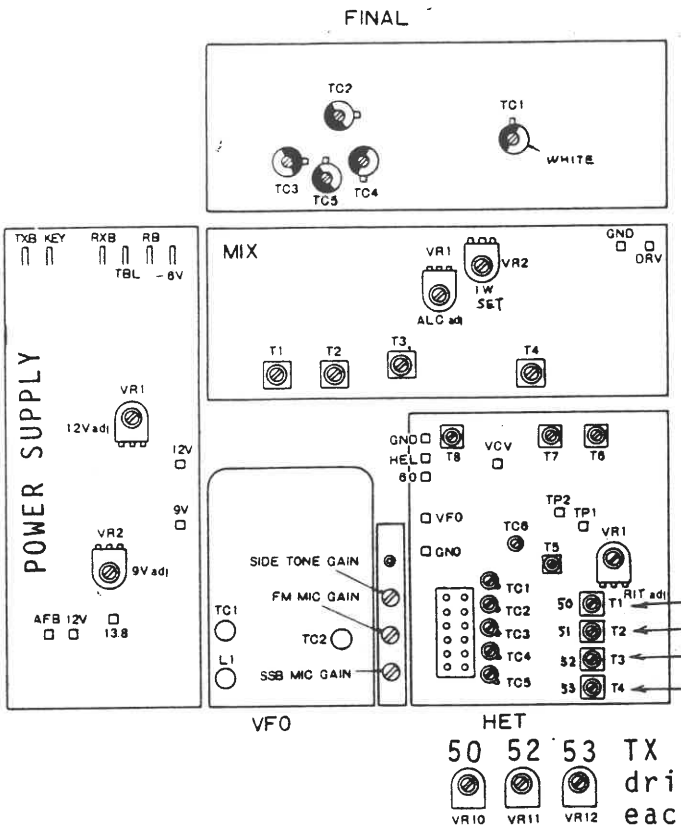
(9) Readjust the main tuning for maximum - swing on the center meter. Confirm a center meter reading of "2" ± 1.

31. AM Sensitivity Adjustment.

(1) Place the Mode Switch to AM.

(2) Set the SSG for 0.5mV output, 30% MOD 1KHz.

(3) Adjust T-1 and T-2 for maximum reading on the S-Meter.



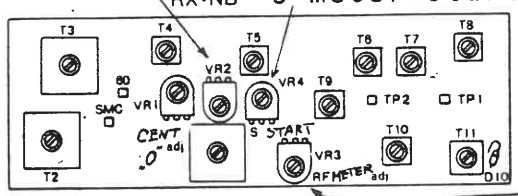
HETRODYNE FREQ.

69.9
70.9
71.9
72.9

50 52 53 TX tracking adjust drive control center. In each band adjust for max TX output.

VR10 VR11 VR12

S "9" adjust **VIEWED FROM TOP**



Adj. for max 10.7 at gen terminal "FM"

Adj for max gen out "CW"

For max RX sen SSB

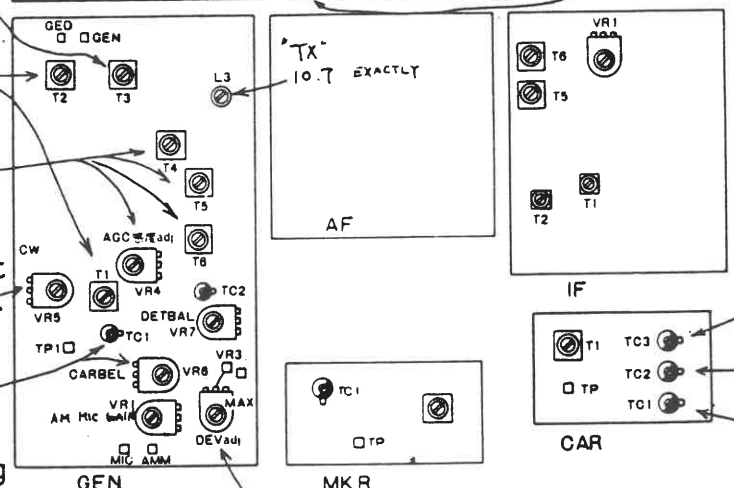
Adjust for same gen out as amount of CW in Fm mode.

SSB carrier supression

Receiver tracking adj. SSG 50.5(S3) adjust for MAX gen each band

"8" at full output

amount of C/M deflection



AM 10.7006

USB 10.7015

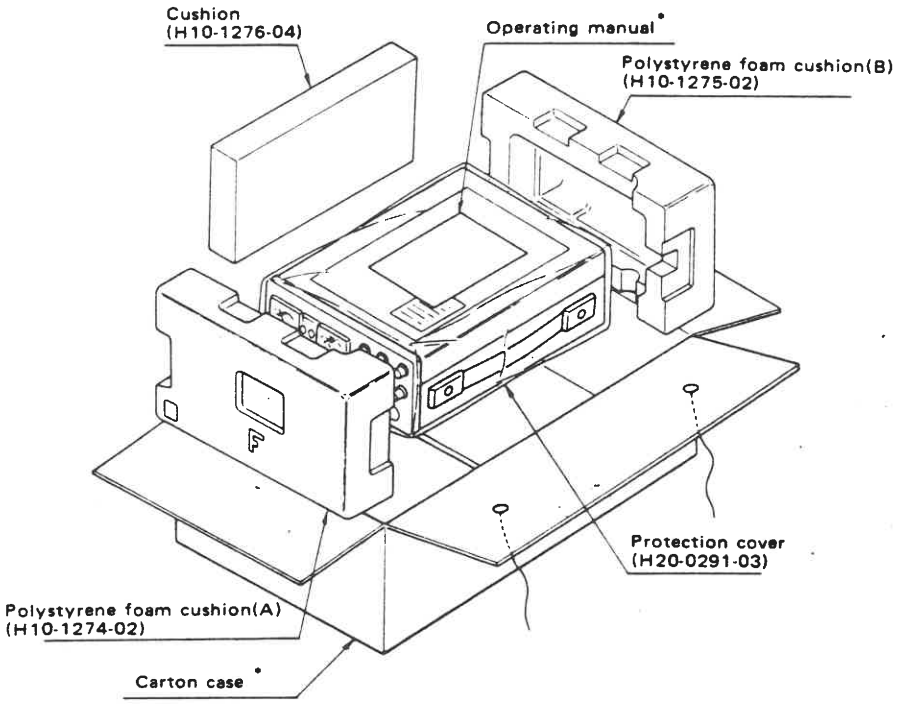
LSb 10.6985

FM Deviation

VIEWED FROM BOTTOM

50.5 52.5 53.5

PACKING



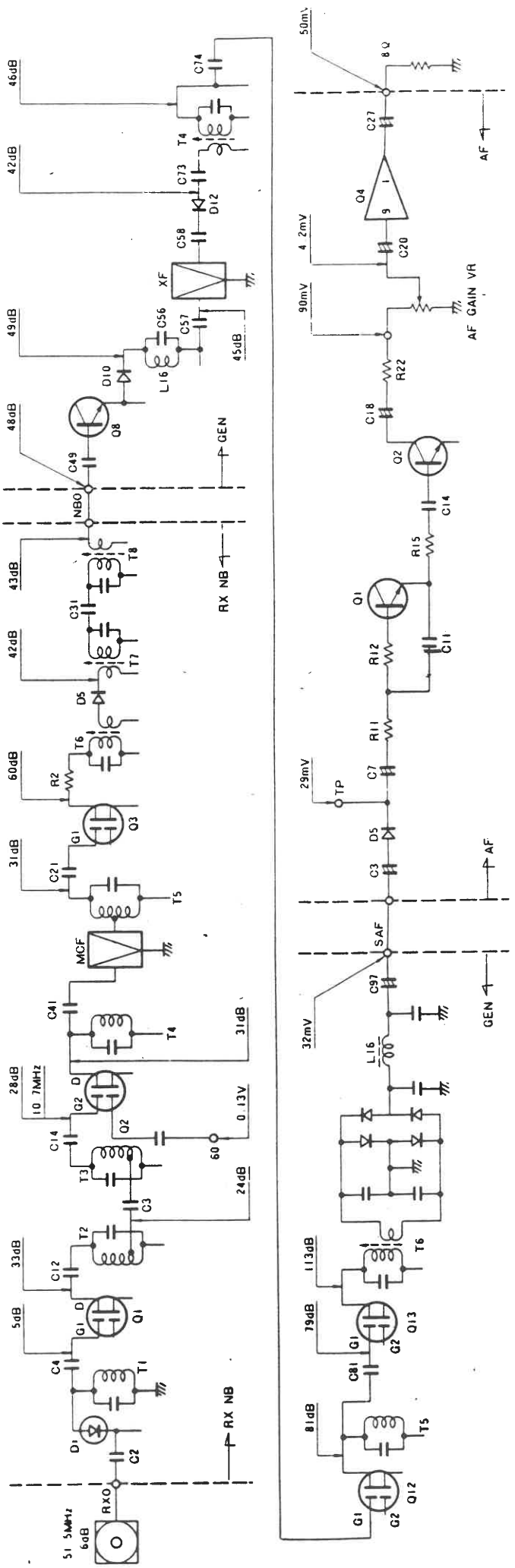
ACCESSORIES

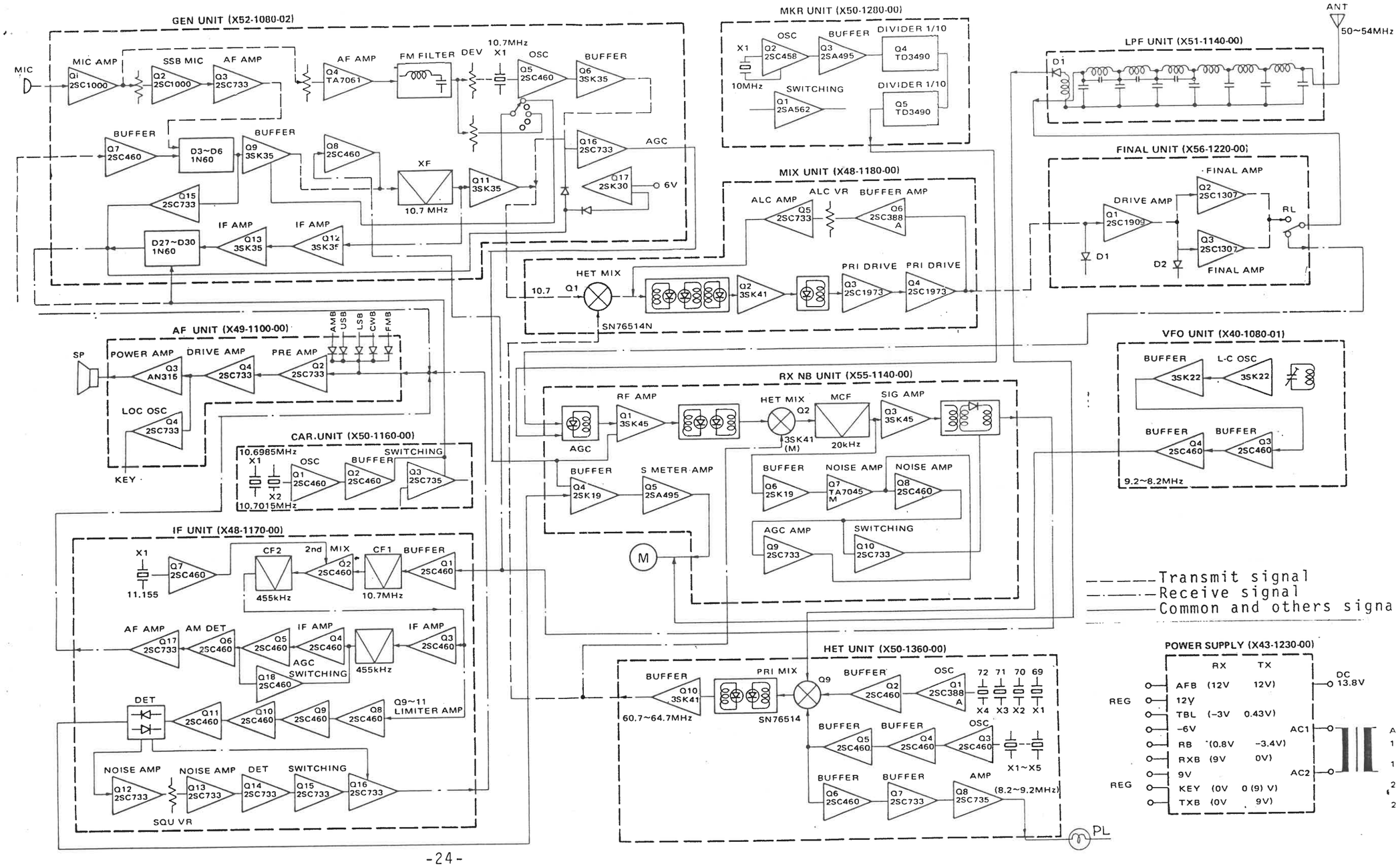
The Model TS-600 transceiver is supplied with the following accessories. After unpacking, check the accessories against the list:

Operating manual	1
RCA plug connector	2
Feet with screws	2
Fuse: 1A (AC 220V)	1
2A (AC 120V)	1
3A (DC 12V)	1
5A (DC cord)	1
Microphone with hook, 500 ohm	1
AC power cord with connector	1
DC power cord with connector	1
VOX plug (installed)	1
Speaker plug	1

LEVEL DIAGRAM

RECEIVING LEVEL
(MODE→USB)

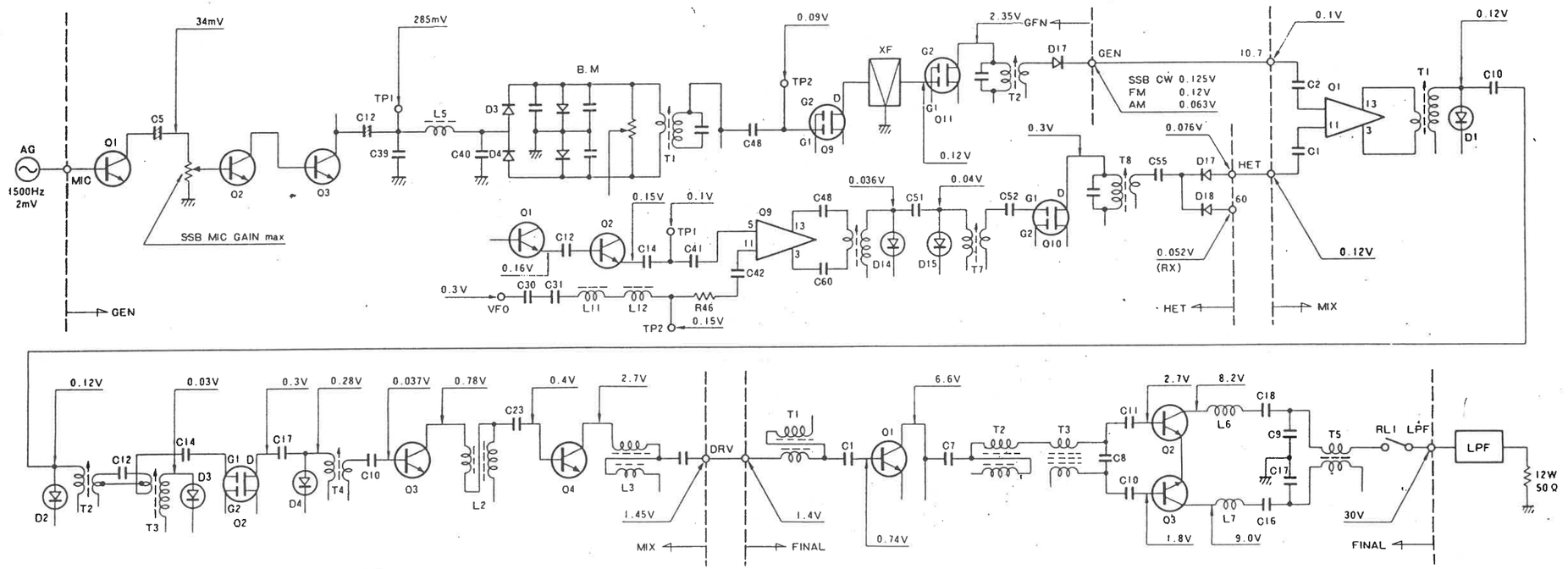


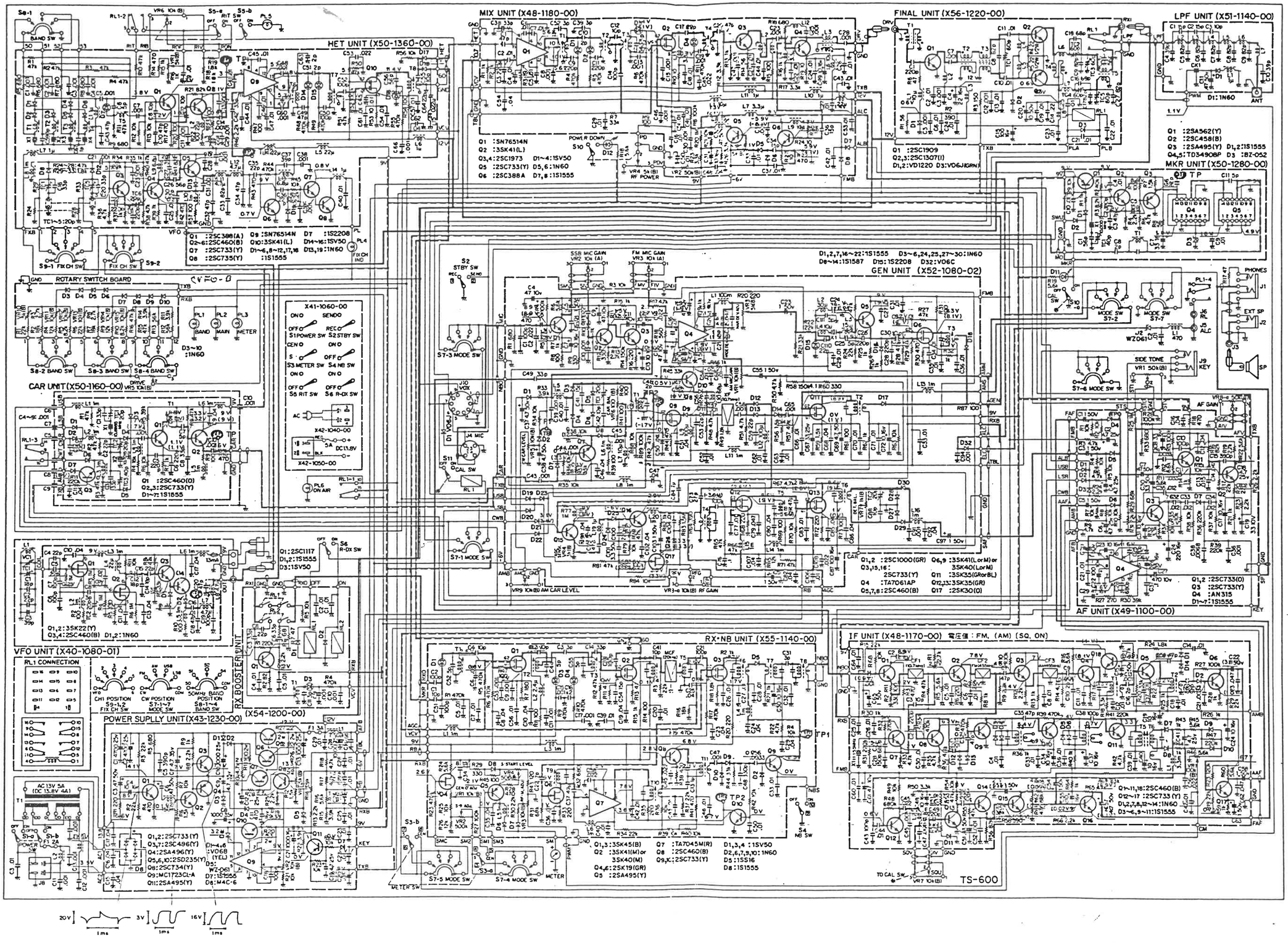

GEN UNIT (X52-1080-02)
MIC
MIC AMP
Q1 2SC1000
SSB MIC
Q2 2SC1000
AF AMP
Q3 2SC733
AF AMP
Q4 TA7061
FM FILTER
DEV
10.7MHz
X1
OSC
Q5 2SC460
BUFFER
Q6 3SK35
BUFFER
Q7 2SC460
D3~D6 1N60
BUFFER
Q9 3SK35
Q8 2SC460
XF
10.7 MHz
Q11 3SK35
Q16 2SC733
AGC
Q17 2SK30
6V
Q15 2SC733
IF AMP
Q13 3SK35
IF AMP
Q12 3SK35
D27~D30 1N60
MKR UNIT (X50-1280-00)
OSC
X1
Q2 2SC458
10MHz
BUFFER
Q3 2SA495
DIVIDER 1/10
Q4 TD3490
SWITCHING
Q1 2SA562
DIVIDER 1/10
Q5 TD3490
ANT
50~54MHz
LPF UNIT (X51-1140-00)
D1
FINAL UNIT (X56-1220-00)
FINAL AMP
Q2 2SC1307
DRIVE AMP
Q1 2SC1909
RL
Q3 2SC1307
D1
D2
FINAL AMP
MIX UNIT (X48-1180-00)
ALC AMP
Q5 2SC733
ALC VR
BUFFER AMP
Q6 2SC388 A
HET MIX
10.7
Q1
SN76514N
Q2 3SK41
PRI DRIVE
Q3 2SC1973
PRI DRIVE
Q4 2SC1973
AF UNIT (X49-1100-00)
AMB
USB
LSB
CWB
FMB
SP
POWER AMP
Q3 AN315
DRIVE AMP
Q4 2SC733
PRE AMP
Q2 2SC733
LOC OSC
Q4 2SC733
KEY
CAR.UNIT (X50-1160-00)
10.6985MHz
X1
X2
10.7015MHz
OSC
Q1 2SC460
BUFFER
Q2 2SC460
SWITCHING
Q3 2SC735
RX NB UNIT (X55-1140-00)
RF AMP
Q1 3SK45
AGC
HET MIX
Q2
3SK41 (M)
MCF
20kHz
SIG AMP
Q3 3SK45
BUFFER
Q4 2SK19
S METER AMP
Q5 2SA495
M
BUFFER
Q6 2SK19
NOISE AMP
Q7 TA7045 M
NOISE AMP
Q8 2SC460
AGC AMP
Q9 2SC733
SWITCHING
Q10 2SC733
VFO UNIT (X40-1080-01)
BUFFER
3SK22
L-C OSC
3SK22
BUFFER
Q4 2SC460
BUFFER
Q3 2SC460
9.2~8.2MHz
IF UNIT (X48-1170-00)
X1
11.155
Q7 2SC460
CF2
455kHz
2nd MIX
Q2 2SC460
CF1
10.7MHz
BUFFER
Q1 2SC460
AF AMP
Q17 2SC733
AM DET
Q6 2SC460
IF AMP
Q5 2SC460
IF AMP
Q4 2SC460
455kHz
IF AMP
Q3 2SC460
AGC SWITCHING
Q18 2SC460
DET
Q11 2SC460
Q10 2SC460
Q9 2SC460
Q8 2SC460
Q9~11 LIMITER AMP
NOISE AMP
Q12 2SC733
NOISE AMP
Q13 2SC733
DET
Q14 2SC733
SWITCHING
Q15 2SC733
Q16 2SC733
SQU VR
HET UNIT (X50-1360-00)
BUFFER
Q10 3SK41
60.7~64.7MHz
PRI MIX
SN76514
Q9
BUFFER
Q2 2SC460
OSC
Q1 2SC388 A
72 71 70 69
X4 X3 X2 X1
BUFFER
Q5 2SC460
BUFFER
Q4 2SC460
OSC
Q3 2SC460
X1~X5
BUFFER
Q6 2SC460
BUFFER
Q7 2SC733
AMP
Q8 2SC735
(8.2~9.2MHz)
PL
Transmit signal
Receive signal
Common and others signa
POWER SUPPLY (X43-1230-00)
RX
TX
REG
AFB (12V 12V)
12V
TBL (-3V 0.43V)
-6V
RB (0.8V -3.4V)
RXB (9V 0V)
9V
REG
KEY (0V 0 (9) V)
TXB (0V 9V)
DC 13.8V
AC1
AC2

LEVEL DIAGRAM

TRANSMITTING LEVEL

(MODE→CW)




MIX UNIT (X48-1180-00)
FINAL UNIT (X56-1220-00)
LPF UNIT (X51-1140-00)
HET UNIT (X50-1360-00)
MKR UNIT (X50-1280-00)
GEN UNIT (X52-1080-02)
ROTARY SWITCH BOARD
CAR UNIT (X50-1160-00)
VFO UNIT (X40-1080-01)
RX BOOSTER UNIT (X54-1200-00)
POWER SUPPLY UNIT (X43-1230-00)
RX·NB UNIT (X55-1140-00)
IF UNIT (X48-1170-00)
AF UNIT (X49-1100-00)
TS-600
Q1 :SN76514N
Q2 :3SK41(L)
Q3,4:2SC1973 D1~4:1SV50
Q5 :2SC733(Y) D5,6:1N60
Q6 :2SC388A D7,8:1S1555
Q1 :2SC1909
Q2,3:2SC1307(I)
D1,2:VD1220 D3:VD6J(GRN)
Q1 :2SA562(Y)
Q2 :2SC458(B)
Q3 :2SA495(Y) D1,2:1S1555
Q4,5:TD3490BP D3 :BZ-052
Q1 :2SC388(A) Q9 :SN76514N D7 :1S2208
Q2~6:2SC460(B) Q10:3SK41(L) D14~16:1SV50
Q7 :2SC733(Y) D1~6,8~12,17,18 D13,19:1N60
Q8 :2SC735(Y) :1S1555
D1,2,7,16~22:1S1555 D3~6,24,25,27~30:1N60
D8~14:1S1587 D15:1S2208 D32:V06C
Q1,2 :2SC1000(GR) Q6,9 :3SK41(L or M) or 3SK40(L or M)
Q3,15,16: 2SC733(Y) Q11 :3SK35(GR or BL)
Q4 :TA7061AP Q12,13:3SK35(GR)
Q5,7,8:2SC460(B) Q17 :2SK30(O)
Q1,3:3SK45(B) Q7 :TA7045M(R) D1,3,4 :1SV50
Q2 :3SK41(M) or 3SK40(M) Q8 :2SC460(B) D2,6,7,9,10:1N60
Q4,6:2SK19(GR) Q9,K:2SC733(Y) D5 :1SS16
Q5 :2SA495(Y) D8 :1S1555
Q1,2:2SC733(Y) Q3,7:2SC496(Y) Q4:2SA496(Y) Q5,6,10:2SD235(Y) Q8:2SC734(Y) Q9:MC1723CL-A Q11:2SA495(Y)
D1~4,6 :V06B (YEL) D5 :WZ-061 D7:1S1555 D8:M4C-6
Q1,2:2SC460(O) Q3,3:2SC733(Y) D1~7:1S1555
Q1,2:3SK22(Y) Q3,4:2SC460(B) D1,2:1N60
Q1,2 :2SC733(O) Q3 :AN315 D1~7:1S1555
20V 3V 16V 1ms
3SK22(Y)
2SC460(B) 2SC460(O) 2SC458(B)
2SC733(Y) 2SC734(Y) 2SC388(A) 2SA495(Y) 2SC733(O)
2SA562(Y) 2SC735(Y) 2SC1000(GR) 2SK19(GR)
2SC496(Y) 2SA496(Y)
2SD235(Y)
MC1723CL-A
TOP VIEW
SN76514N TD3490BP
3SK41(L or M) 3SK40 (L or M) 3SK35(GR)
2SC1973
AN315
TA7061AP
2SK30(O)
2SC1117
3SK45(B)
TA7045M(R)
2SC1909 2SC1307(I)